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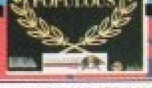
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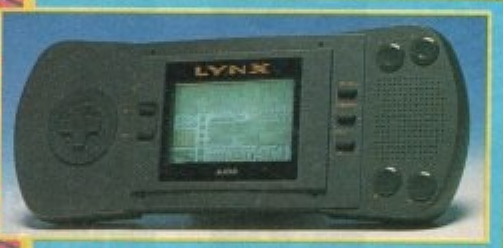


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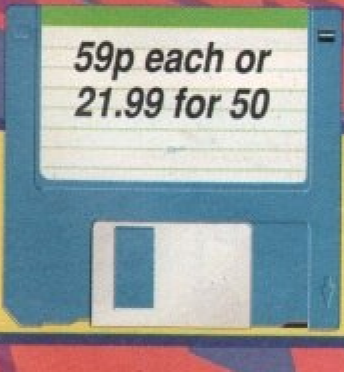
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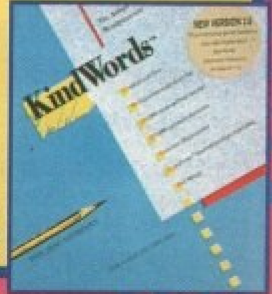
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THE COVERDISK

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Andrew's Animation Studio

Get animated with this **superb** program. Andrew's Animation Studio allows you to **create** your own drawings, then **animate** them using **advanced yet easy-to-use** techniques! Rolf Harris never had it so easy! If you're into graphics, don't miss this!



Trippin and GoMoku

Two **highly addictive** board games grace this month's game of the month slot. Easy to play, yet **maddeningly difficult** to master, the computer will play you to the ragged edge. This pair'll keep you playing for ages!

InlayMaker

Create your own cassette tape inlays with this useful utility, and save the hassle of searching your tapes for that special track. Will print directly off this disk to most common printers!

Kingsize!

A jazzy Tune-of-the-Month from Holland. Guaranteed to keep your toes tapping and your fingers clicking – a highly original piece of music

MuchMore_PP

A brand new version of the popular text display-and-print program which now accepts powerpacked files! Guaranteed to print directly from this disk!

AMOS OOPS!

AAAARGH! Last month's AMOS programs arrived too late for the disk! Here they are in full!



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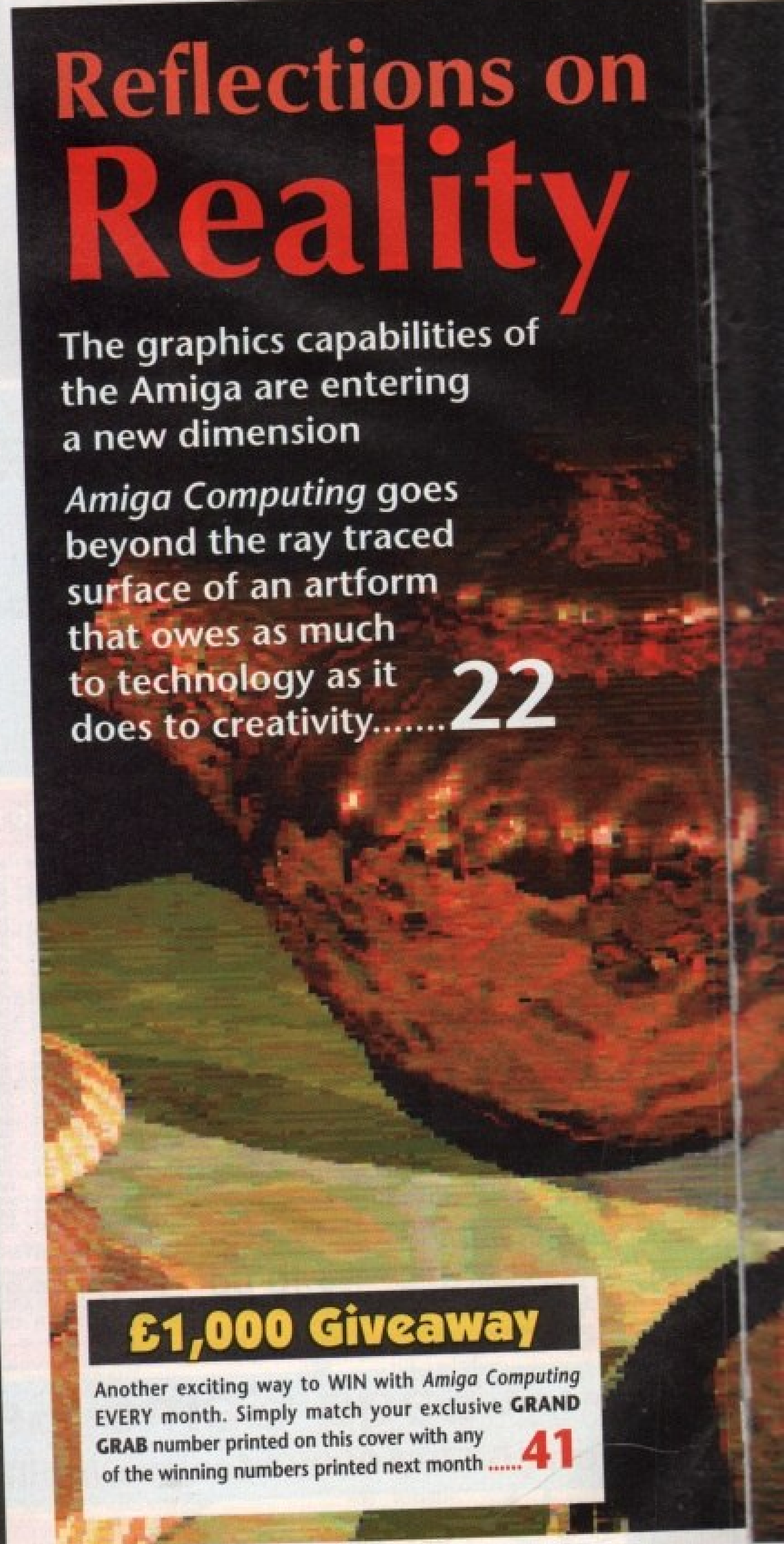


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COVER STORY



Reflections on Reality

The graphics capabilities of the Amiga are entering a new dimension

Amiga Computing goes beyond the ray traced surface of an artform that owes as much to technology as it does to creativity.......22

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Something for everyone, every month, from the Amiga experts



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REGULARS

THE GAME ZONE

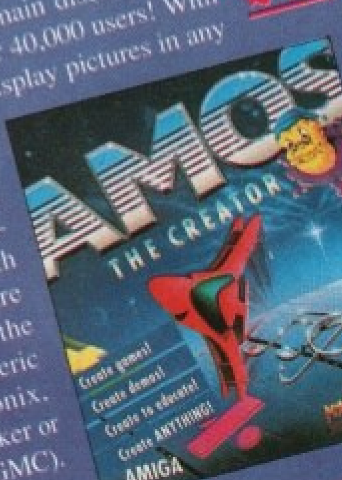
FEATURES

AMOS

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AMOS has become the definitive language for the Amiga – 250 AMOS Public Domain discs, a 1,700 strong AMOS user club and over 40,000 users! With AMOS it's simplicity itself to display pictures in any graphics mode, add copper list rainbows, write text using any Deluxe Paint font, overlay windows, add pull-down menus, send both software and hardware sprites spiralling around the screen, and add atmospheric music created in Sonix, Soundtracker, Noisetracker or Games Music Creator (GMC).



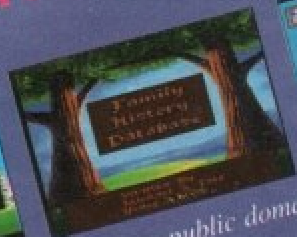
'Nothing will ever top it' – Amiga Computing

AMOS did all this... and much more









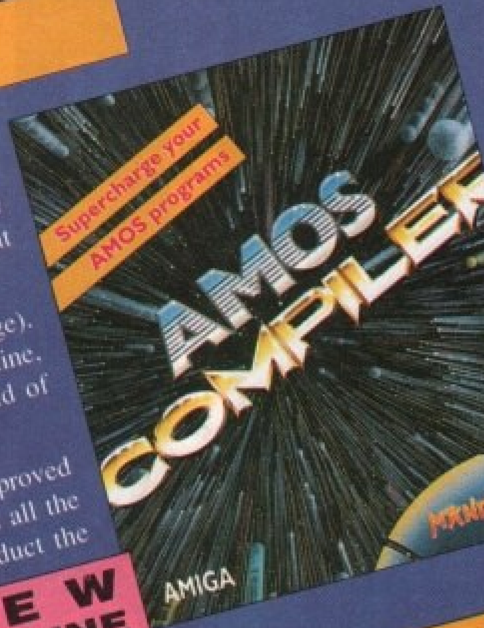
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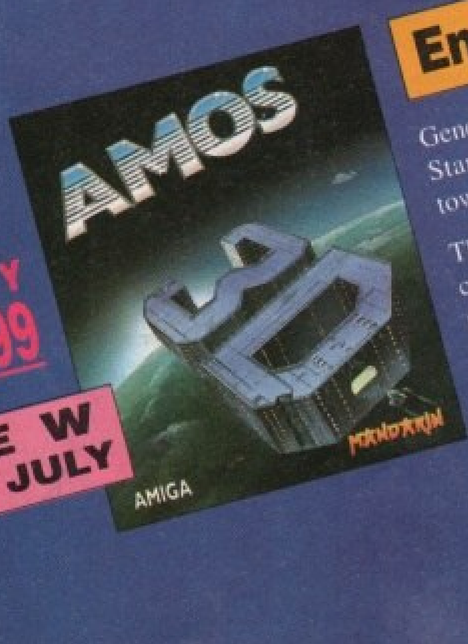
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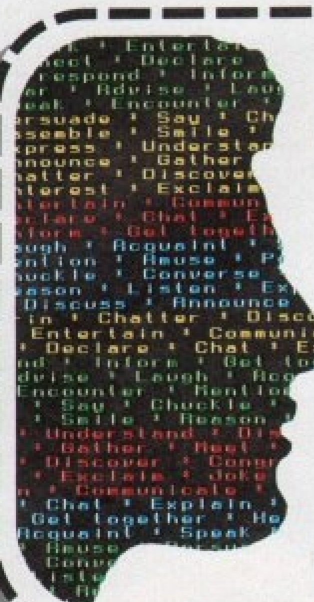


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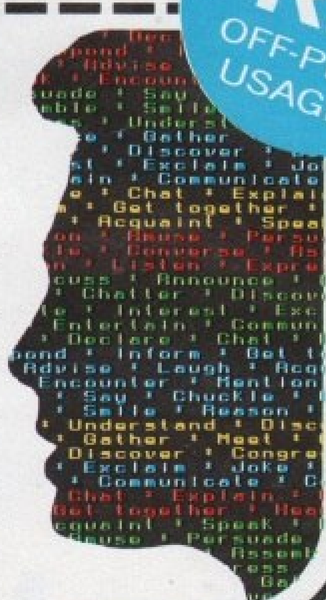
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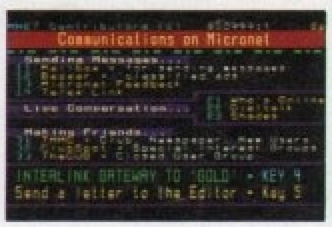
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CDTV in a domestic non-computer environment, and that's the way Commodore want it to stay

WHAT'S new

CDTV– a world away from the Amiga, or just four feet?

Commodore continues to distance CDTV from the Amiga family, as Don Lewis reports

AN eleventh hour row has ensured that Commodore's CDTV will now be stocked by a number of independent computer retailers in addition to electrical goods multiples such as Dixons, Rumbelows, Comet and John Lewis.

As CDTV's promised delivery date loomed, Commodore angered many smaller computer retailers by refusing to let them stock it during the initial launch period. The decision was part of Commodore's determined attempt to divorce the Amiga-based system from the computer market, hoping to achieve higher sales in the broader electrical goods field.

But following strong representations from the retailers and from their trade body NASCR (The National Association of Specialist Computer Retailers), the company relented on its decision.

CDTV is now being stocked by 150 selected retailers who have agreed to abide by a number of conditions set out by Commodore. They say that CDTV must be displayed in a separate area, at least four feet away from any computers.

They ban the word computer from any CDTV advertising; stipulate that CDTV software stocked must include at least 20 non-game titles and say that retail staff should attend CDTV "product awareness seminars".

"To say that we made strong representations to Commodore is putting it mildly," said Clive Bishop of NASCR. "It would appear that they have now had a re-think and consider that we have the necessary expertise to sell it

"They didn't want to have it labelled as a computer. At the end of the day, they wanted a mass marketplace to create more interest in the machine but I think we have proved to them that we are professional in what we do and can do the job the way they want it.

"Considering that they said no in the first place, I think most of the independent retailers are quite happy about the conditions which they can implement without too much trouble."

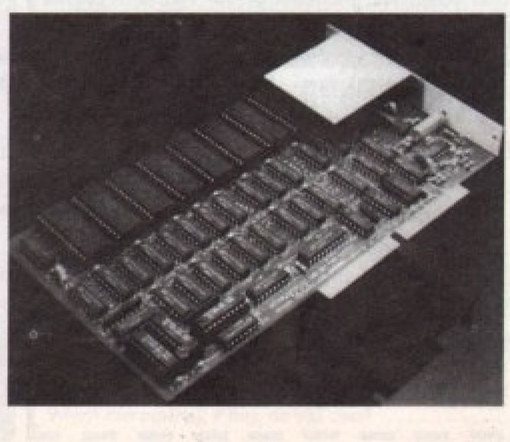
Spokesman from Commodore, Andrew Ball added: "We have to control the distribution of CDTV because potentially, it is so much more than an Amiga. However, we have to respond to market demands and we have now decided to release it to certain selected independents. They have proved to us that they can market it with the professionalism which we need."

Price fall for FlickerFixer

THE price of Microway's (081-541 5466) A2000 FlickerFixer graphics enhancement board for the Amiga has been slashed to £125. The board, which previously sold for £325, is intended to eliminate the flicker problem on high resolution and VGA monitors.

Managing director Simon Shute commented: "Thanks to the high volume of sales that Microway has achieved, the company is now able to offer the FlickerFixer at a price that is within the range of all Amiga users, not just the professionals."

Microway claims that the board is compatible with all Amiga software; it does not modify the standard Amiga video signals and can be used simultaneously with Amiga PAL outputs.



Amiga to be used for war plans

ONE of the UK's leading producers of strategy games, Impressions (081-752 0261), have announced the imminent release of two new wargames – Afrika Korps and The Charge of the Light Brigade.

The second in Ken Wright's new series which started with Blitzkreig May 1940, Afrika Korps challenges the player to win control of North Africa, taking the role of either Rommel's Afrika Korps or Montgomery's Eighth Army – the Desert Rats.

It authentically charts the desert campaign of the Second World War which included such famous battles as Tobruk and El Alamein. The package includes a historical background booklet and the program features artificial intelligence with the facility to delegate tactical command to divisional commanders. Supply problems for the desert campaign give an additional challenge to players.

One of the most famous and dramatic of all historical battles, The Charge of the Light Brigade is Impressions' second new offering. It has been designed to improve on the basic concepts used in its predecessor Rorke's Drift.

Again, the package comes with an historical background booklet and also includes a battle map. Amiga versions of Afrika Korps and The Charge of the Light Brigade cost £29.99.

"We have more fabulous strategy games under development for this autumn including a complex new role-playing game system", said David Lester of Impressions. "This will be used in a variety of icon-driven role-playing games."

WHAT'S new

Dial a tip

GAMES players stuck at troublesome parts in US Gold adventure and shoot-'em-ups with access to a telephone and huge bank overdraft facilities can dial a series of numbers which have been dedicated to giving useful hints and tips for popular US Gold titles.

Six lines will be employed for the 24-hour a day service and they will carry answers for each section of games. The firm's software has been analysed by US Gold game testers to find easy-to-follow solutions to almost any problem a player is likely to encounter.

Another line from the software house gives information on forthcoming releases, promotions and events. This service will regularly feature competitions. Again the line is available seven days a week, 24 hours a day.

The numbers are as follows: New Releases 0839 654 123, Lucasfilm Helpline 0839 654 123, Delphine Helpline 0839 654 284, SSI Helplines 0898 442 025, 0898 442 026 and 0898 442 030.

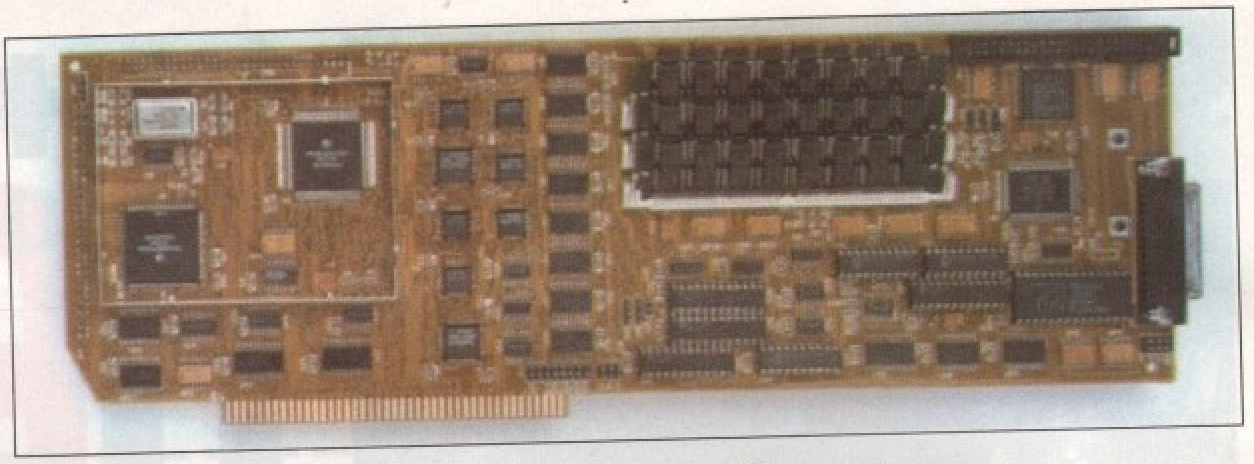
All calls are charged at 33 pence a minute at off-peak times and 44 pence a minute at all other times. Callers should get permission of the telephone owner before ringing up.

Colour scanner heads for UK

A NEW colour 24-bit flatbed scanner is about to be released for the UK market by Californian firm Oxxi (010 1 213 427 1227).

ScanMaster boasts 300 dots per inch and is compatible with all Amiga models. Documents up to 8.5 inches by 11.7 inches can be accepted by the scanner and it has its own ImageMaster manipulation software which is said to be easy to learn and use. A number of accessories are included in the software to enhance, manipulate and save images, as well as a facility for making professional 24-bit CMY or CMYK colour separations from any scanned image.

Other options enable you to sharpen images by enhancing colour contrast or create a blurred look by blending adjacent pixels. The price for the 110 volt scanner in the US is $1,995 and the fax number for Oxxi is 010 1 213 427 0971.



Amiga to run faster...

A SINGLE board accelerator system including a 68030 accelerator board, up to 16 megabytes of ram and SCSI controller has been launched for the A2000 by Great Valley Products (010 1 215 337 8770)

Series II Combo is available as either a 22MHz board with one megabyte of memory on board which is expandable to 13 megabytes costing $1,099 or a 33MHz version with four megabytes, expandable up to 16 megabytes, at $1,999.

An optional internal SCSI hard drive is available with a storage capacity of 340 megabytes. This can be mounted on to the accelerator using the firm's hard disk drive mounting kit.

Series II Combo can be switched to 68000 mode by clicking on an icon or by using a mode switching utility in the startup sequence.

GVP's president, Gerard Bucas, told Amiga Computing: "This enhanced accelerator kit provides the ultimate expandability for the A2000 and is destined to take the Amiga to unprecedented levels of versatility."

Contact the UK distributor Power Computing on (0234 273000).

... and faster...

AMIGA owners feeling the need for even more speed will welcome yet another accelerator board from Great Valley which has been billed as the fastest 68030 board on the market.

The 50MHz 68030 board comes with four megabytes of Drams and can be expanded to 32 megabytes. Even with the kit installed into the computer, all of the A2000's expansion slots remain free for expansion.

"This newer, faster and more expandable A3050 accelerator kit will turbo-charge the Amiga 2000 beyond the user's wildest dreams", claims a GVP spokesman. The unit is current available in the States for $2,999.

... and faster still

THE speed of the Amiga 2000 can be increased to five times that of the Amiga 3000 thanks to the first 68040 board for the computer.

German firm Advanced Computer Design (010 49 421 34636) is aiming Fusion-Forty at users of professional ray-tracing packages and other applications requiring a lot of power.

It gives the A2000 a speed of 25MHz and 18 to 25 MIPS. The board is said by the company to be compatible with existing software.

Fusion-Forty can be plugged into the processor slot of the Amiga in five minutes and is expandable to give up to 32 megabytes of memory. The four megabyte version of the board costs DM5,999.

Internal hard disk for A500

A500 OWNERS are now able to buy an internal hard disk drive marketed by ICD (See Amiga Computing 37).

Novia 20i has 20 megabytes of storage capacity and an access time of 23 miliseconds.

It is based on 2.5-inch drives used in IBM-compatible laptop and notebook computers and comes from American firm ICD Incorporated (010 1 815 968 2228). The drive plugs straight into the A500 between the 68000 and the motherboard and does not require soldering.

It is auto-booting and works with Kickstart version 1.3 and later. The driver software uses the same caching that was developed for ICD's AdSCSI 2000 and 2080 hard disk interfaces for the A2000.

Novia has a recommended price of $659.95 and is available in the UK from Power Computing, Silica Systems and Third Coast Technologies.

AMIGA people

A hot Tipster

PUNTERS who went along to a recent evening meeting at Newton Abbot racecourse in Devon were surprised to see an Amiga calling the odds and it was all thanks to toilet rolls.

Helping the Amiga to pick the winners was Steve Marriott with his computer betting program The Tipster which he was demonstrating and selling to racegoers.

"I first went to the racecourse when I was selling toilet rolls for my father's company," he told *Amiga Computing*. "I spoke to the head groundsman who said that the chairman of the course, Mr Wilcox, was looking for new ideas. We got into contact with him and he was very helpful.

"The course provided us with a power point for the Amiga and a good site 30 feet from the track between the Tote and the Racing Post stand from which we get most of our statistics. It was a very successful and enjoyable evening."

Steve has now founded a new firm, Sidmouth Software, which is part of his TAM Marketing group and will be responsible for all software projects, marketing and distribution of his products.

The latest to be added to the line-up of betting programs is The Bookie – an odds calculator for multiple bets such as Yankies. Also just available is League Manger which Steve developed at the request of the Football Association.

It helps organisers to run various leagues with printouts of fixtures and league tables and can even cope with the different league rules for 5-a-side football, pool, billiards, netball, snooker and golf.



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Worth £29.95 - With every Citizen printer from Silica.

FREE COLOUR KIT
Worth £39.95 - With Swift 9 and Swift 24 printers.

2 YEAR WARRANTY
Silica offer a 2 year warranty (including the printer head) with every Citizen printer purchased from Silica.

WINDOWS 3.0
Free Windows 3.0 driver - In the Silica Starter Kit.

FREE HELPLINE
Technical support helpline open during office hours.

MADE IN THE UK
Citizen printers are manufactured to high standards.

144 CPS DRAFT 9 PIN



CITIZEN 120D+

The Citizen 120D+ is one of the UK's best selling printers. It has a stylish appearance and excellent features and performance for such an inexpensive printer. The 120D+ is available with either a serial or parallel interface and is an ideal first printer.

- *9-pin Printhead*
- *Print Speed 144cps Draft*
- *30cps NLQ*
- *Epson & IBM Graphics Emulation*
- *Pull Tractor & Bottom Feed*
- *Superior Graphics - 240×216dpi*
- *FREE Starter Kit*

RRP £233.83
STARTER KIT £29.95
TOTAL RRP: £263.78
SAVING: £112.20
SILICA PRICE: £151.58

£129 +VAT = £151.58

144 CPS DRAFT 24 PIN



CITIZEN 124D

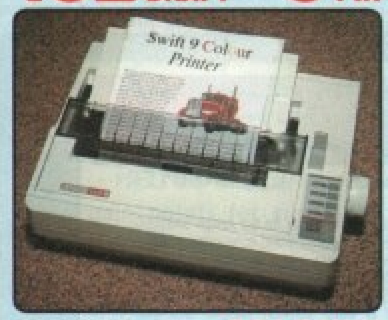
The award winning Citizen 124D brings high quality 24-pin dot matrix printing within every computer users reach. It is the ideal choice where high quality printing is required at a budget price.

- *24-pin Impact Printer*
- *Print Speed 144cps Draft*
- *2 LQ Fonts (48cps)*
- *8K Buffer*
- *Epson, IBM & NEC P6+ Emulation*
- *Advanced Paper Parking*
- *Superior Graphics - 360×360dpi*
- *FREE Starter Kit*

RRP £292.58
STARTER KIT £29.95
TOTAL RRP: £322.53
SAVING: £112.20
SILICA PRICE: £210.33

£179 +VAT = £210.33

192 CPS DRAFT 9 PIN



SWIFT 9 - COLOUR!

The Citizen Swift 9 is perfect for those who require high quality dot matrix black or colour printing at a budget price. The print quality of Swift 9 rivals that of other manufacturer's 24-pin models.

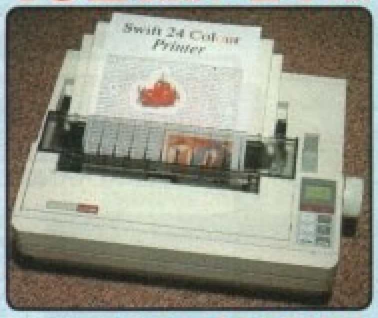
- *9-pin Impact Printer*
- *Print Speed 192cps Draft*
- *3 NLQ Fonts (48cps)*
- *8K Buffer*
- *Epson & IBM Graphics Emulation*
- *Advanced Paper Parking*
- *FREE Starter Kit*
- *FREE Colour Kit*

FREE! COLOUR KIT

RRP £280.83
STARTER KIT £29.95
COLOUR KIT £44.65
TOTAL RRP: £355.43
SAVING: £133.35
SILICA PRICE: £222.08

£189 +VAT = £222.08

192 CPS DRAFT 24 PIN



SWIFT 24 - COLOUR!

The Citizen Swift 24 is one of Europe's best selling printers and has won awards including Printer Of The Year 1990. Its rapid print speed, quality and black or colour options, make it a natural choice.

- *24-pin Impact Printer*
- *Print Speed 192cps Draft*
- *4 NLQ Fonts (64cps)*
- *8K Buffer*
- *Epson, IBM & NEC P6+ Emulation*
- *Advanced Paper Parking*
- *FREE Starter Kit*
- *FREE Colour Kit*

FREE! COLOUR KIT

RRP £428.88
STARTER KIT £29.95
COLOUR KIT £44.65
TOTAL RRP: £503.48
SAVING: £199.15
SILICA PRICE: £304.33

£259 +VAT=£304.33

PRINTER ACCESSORIES



SHEET FEEDERS		
PRA 1200	120D	£71.38
PRA 1215	124D/Swift 9/24	£88.70
PRA 1228	124D/Swift 9/24	£42.00
SERIAL INTERFACES		
PRA 1189	120D+	£56.45
PRA 1209	Swift 9/124D	£32.25
PRA 1709	Swift 24	£26.38
PRINTER STAND		
PRA 1242	124D/Swift 9/24	£24.03
ORIGINAL RIBBONS		
RIB 3520	120D/Swift 9 Black	£4.11
RIB 3924	124D/Swift 24 Black	£4.70
RIB 3936	Swift 9/24 Colour	£15.63
COLOUR KITS		
PRA 1236	Swift 9/24	£39.65

All prices include VAT and Free delivery.

FREE! STARTER KIT

Every Citizen printer from Silica, comes complete with the Silica Printer Starter Kit, including everything you need to get up and running with your new printer immediately, FREE OF CHARGE!

- *3½" Dual Format Disk with Amiga & ST Printer Drivers*
- *3½" Disk with Drivers for Microsoft Windows 3*
- *2 Metre Parallel Printer Cable*
- *200 Sheets of High Quality Continuous Paper*
- *200 Continuous Address Labels on Tractor Feed*
- *5 Continuous Envelopes on Tractor Feed*

If you already own a printer, and would like a Silica Printer Starter Kit, you may order one (ref: KIT 5000) for the special Silica price of £24.95 - £5 off RRP!

NORMAL RRP **£29.95**



SILICA SYSTEMS OFFERS YOU

- *FREE OVERNIGHT COURIER DELIVERY:* On all hardware orders shipped in the UK.
- *TECHNICAL SUPPORT HELPLINE:* Team of PC technical experts at your service.
- *PRICE MATCH:* We normally match competitors on a "Same product - Same price" basis.
- *ESTABLISHED 12 YEARS:* Proven track record in professional computer sales.
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- *BUSINESS/EDUCATION/GOVERNMENT:* Volume discounts available for large orders.
- *SHOWROOMS:* Demonstration and training facilities at our London & Sidcup branches.
- *THE FULL STOCK RANGE:* All of your PC requirements from one supplier.
- *FREE CATALOGUES:* Will be mailed to you with offers and software/peripheral details.
- *PAYMENT:* By cash, cheque and all major credit cards.

Before you decide when to buy your new printer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or software, or some technical help and advice. And, will the company you buy from contact you with details of new products? At Silica Systems, we ensure that you will have nothing to worry about. Silica Systems is one of the UKs leading independent computer dealers and provides a quality service to users at home, in education and in business throughout the nation. Silica have been established for over 12 years, and have an annual turnover of £13 million. With our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now, for our latest Free literature on the Citizen printer range and begin to experience the "Silica Systems Service".

SILICA SYSTEMS

MAIL ORDER: Order Lines Open: Mon-Sat 9.00am-6.00pm	1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX	No Late Night Opening	**Tel: 081-309 1111** Fax No: 081-308 0608
LONDON SHOP: Opening Hours: Mon-Sat 9.30am-6.00pm	52 Tottenham Court Road, London, W1P 0BA	No Late Night Opening	**Tel: 071-580 4000** Fax No: 071-323 4737
LONDON SHOP: Opening Hours: Mon-Sat 9.30am-6.00pm	Selfridges (1st Floor), Oxford Street, London, W1A 1AB	Late Night: Thursday until 8pm	**Tel: 071-629 1234** Extension: 3914
SIDCUP SHOP: Opening Hours: Mon-Sat 9.00am-5.30pm	1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX	Late Night: Friday until 7pm	**Tel: 081-302 8811** Fax No: 081-309 0017

To: Silica Systems, Dept AMCOM-0791-55, 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX

PLEASE SEND CITIZEN PRINTER INFORMATION

Mr/Mrs/Ms: .... Initials: .... Surname: ....

Address: ....

....

.... Postcode: ....

Tel (Home): .... Tel (Work): ....

Company Name (if applicable): ....

Which computer(s), if any, do you own? ....

E&OE - Advertised prices and specifications may change - Please return the coupon for the latest information.

Step forward into the World of microdeal music

SAMPLERS & SEQUENCERS EXPLAINED

SAMPLE
A sound that has been loaded into a computer, and is represented by numbers (digital) rather than noises (analogue).

SAMPLER
Usually a small cartridge that allows you to take sounds from a microphone (with amplification), tape, CD etc and record (digitize) them into your computers memory. Once in the memory a sample (sound) can be changed using the sampling software.

SAMPLING SOFTWARE
Allows you to alter sounds that have been digitized by the SAMPLER. Normal functions with sampling software include loading and saving a sample to disk, altering the sample by cutting, speeding up/down, fading in/out, joining to other samples and much much more.

SEQUENCER
A sequencer allows you to take samples and play them back in an order (sequence) that you determine. For example, if you sampled a piano note, a sequencer would allow you to play that note back at different pitches and in a sequence you decide. Your one note loaded into a sequencer can become a complete piece of piano music.

·A·M·A·S·

···THE ADVANCED MIDI AMIGA SAMPLER···

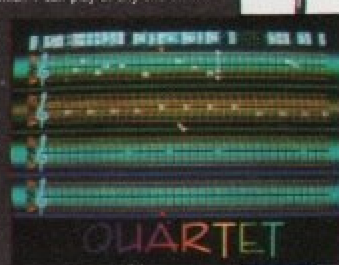


Our top level sampler for the Amiga 500/2000 and 1000* (*special order) combines top of the range electronics with a sensible price. Our unique wedge shaped cartridge includes a built in MIDI interface (in, out & thru) eliminating the need to swap between sampler and midi interface. Other ports include microphone input and phono left & right in. Our software is a "winning package" as described by AMIGA WORLD magazine, and incorporates a state of the art stereo editing suite with virtually every feature you'd want to lay your hands on. A separate MIDI control panel allows utilisation of the built-in interface with the possibility to play back up to 10!!! different samples pitch shifted on your MIDI keyboard. Don't think AMAS is a toy either, our price policy brings high quality products to you at sensible prices. Used by amateurs and professionals AMAS was featured by Paula Abdul in her award winning video Cold Hearted.

Cartridge, software & manual £99.95

QUARTET

This sophisticated sequencer allows you to take samples and sequence them into music. Imagine your samples as a band with QUARTET as the conductor, your band is composed of 16 instruments of which 4 can play at any one time. QUARTET comes with 100 instruments and sounds for inclusion in your own compositions and further sounds can be added using AMAS, MASTER SOUND or most other quality samplers. Music can be input from the Amigas' keyboard, by mouse or if you have a synthesizer keyboard with a midi out socket by playing on the keyboard. Control of samples includes Tempo, Volume, Pitch together with a built-in editor for changing samples without exiting QUARTET. Who knows you could easily be tommorrows "Adamski" or "Mozart" with this highly acclaimed package.



Software & manual £49.95

MASTER SOUND

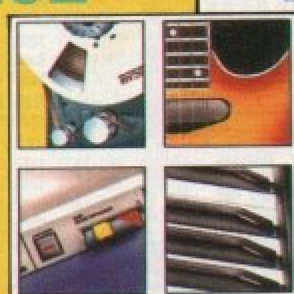
Our mono sampler is low in price but high in features. Our stylish cartridge for direct connection to your parallel port!!!! has a built-in mono audio in socket suitable for input from the headphone socket on your Walkman, cassette or CD player. Full feature editing software includes cut, paste, fading, filters, scope, graphic equaliser etc, and MASTER SOUND even has it's own built-in mini sequencer for real time recording of your own music sequences. "AMIGA FORMAT" magazine said "It produced some of the best quality samples I have ever heard". If you are looking for a low cost sampler that's packed full of features then look no further.



Cartridge, software & manual £39.95

MIDI INTERFACE

Our low cost MIDI INTERFACE provides the easiest way of hooking up your Amiga to a Midi Music Keyboard. Complete with cables that just plug straight into your IN/OUT midi ports and a disk of Public Domain midi software.



Midi Interface £24.95

TO ORDER: SIMPLY PHONE **0726 68020** WITH YOUR CREDIT CARD NUMBER OR POST YOUR CHEQUE/POSTAL ORDER OR CREDIT CARD NUMBER TO: **MICRODEAL LTD P.O. BOX 68 ST AUSTELL CORNWALL PL25 4YB.**

NAME.......................................

ADDRESS.......................................

....

....**POSTCODE**.......................

PLEASE SEND ME	QTY	PRICE EACH	TOTAL
AMAS		£99.95	
MASTER SOUND		£39.95	
QUARTET		£49.95	
MIDI INTERFACE		£24.95	
POST & PACKING		£1.00	
		GRAND TOTAL ENCLOSED	

CREDIT CARD NO.......................................

ALL PRODUCTS FOR THE AMIGA EXPIRY DATE.......................................

WHAT'S new

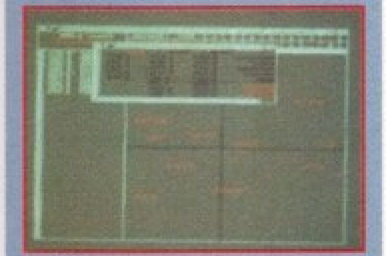
Statistics made easy

MARKET research firms are among businesses that could have their work eased by using the first Amiga statistical data analysis package which is due for release soon.

P-Stat will use a spreadsheet-like interface for entering numeric data which can be entered manually or imported as ASCII or through cut and paste directly from Maxiplan.

Controlled though menus, requesters and dialog boxes, it has standard functions which include matrix manipulation, transposition, additions, inversions, and logarithmic and non-logarithmic transformation function.

Once data is entered, P-Stat will provide access to principal compo-



nent analysis, factor analysis, tabulation techniques, one and two-way analysis of variance, regression, and functions of specific value to market researchers.

Utilities for generating graphs of statistical data are supplied. The package will support 25 graph styles including x-y plotting, time series plotting, 2 and 3D plots and histograms.

To add a better touch to the presentation, graphs can be animated in real time, such as a rotating 3D plot or cube. Graphs can be



saved as IFF, PostScript, Color or EPS formats.

Compatible with any Workbench printer, HPGL plotter or PostScript printer it will support ASCII and WordPerfect file formats. The only limit on the number of variables and data P-Stat can analyse will be determined by the amount of memory the Amiga has free.

P-Stat will work with Kickstart versions 1.3 and 2.0. The price and UK distributor have still to be set. More information from Oxxi (010 1 213 427 1227).



Airbus on Amiga

READY for take off on the Amiga is the computer's first airliner simulation which promises to set new standards in flight simulation on home computers. A320 Airbus will, for the first time on an Amiga simulation, offer a night-time option which will include airfield approach and runway lighting.

The Thalion (010 49 5241 12049) program will be based on the infamous fly-by-wire passenger jet that made news headlines when it landed in trees during a fly-by at a French air show soon after its maiden flight.

It has been written by an ex-Luftwaffe pilot who has decided to display only the left-hand part of the control panel and windows, as this is the only part normally seen by the captain during flight.

Part of the simulation will have pilots taxiing the Airbus from the airport departure stand to the runway threshold, following an airport follow-me van to ensure that the correct route is taken.

Engine sound is described by a company spokesman as being very realistic and an indication of how realistic the simulation is comes when the aircraft lands – as the reverse thrust is activated the Airbus' nose dips.

Flying the plane using instruments will play a major role in the program's use and once users get familiar with flying the Airbus they will be able to operate the aircraft to its true weather limits – a runway visual range of zero – at suitably-equipped aerodromes throughout Europe.

The simulator will be accompanied by a 200-page manual and a copy of the Pooley Flight Guide, a publication used by professional pilots which details airfield approach and departure aids. For planning routes a map with a smaller scale covering land from Bodo in Norway to the southern tip of Italy is included.

Pilots will start as trainees and will gain points for successful flying. Eventually they will move over to the left-hand seat and become captain, at which point the disks can be returned to Thalion for checking and the official captain's wings from the German national carrier Lufthansa will be sent out.

All hazards put on commercial pilots when they make their regular trips into the multi-million pound simulators can be tried out in A320 Airbus.

Engine failures, emergency diversions, wind shear and the ILS (Instrument Landing System) failing during landing in bad weather among other things give the program lasting appeal.

A320 Airbus will cost £34.95 and is expected to be available by September.

A puzzling term

AMIGA owners bored with shoot-'em-ups can now enjoy a new slang term in the computer world – puzzl'em ups. The latest brain teaser from Thalion (010 49 5241 12049) is Tangram, an addictive puzzle based on a principle which originated in China 4,000 years ago.

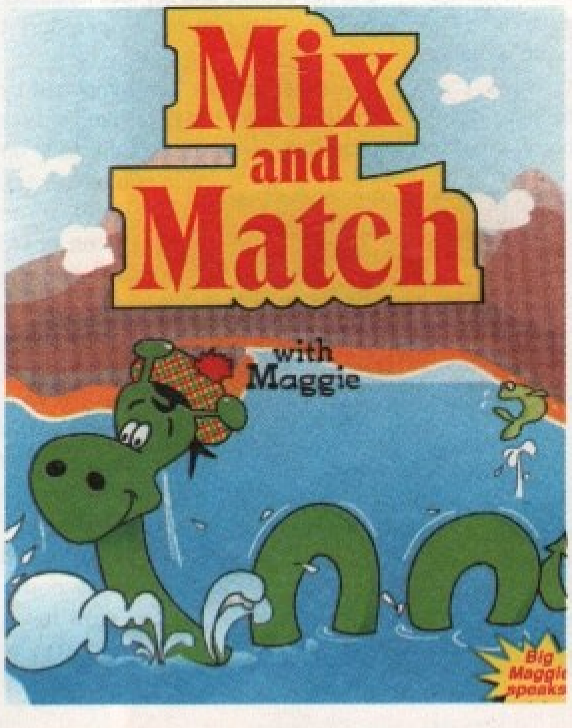
It consists of seven pieces of flat wood cut at angles of 45 and 90 degrees. When fitted together, they make a variety of figures. The Amiga version has 200 levels with increasingly difficult figures to make.

"We have our doubts as to whether people exists who have the incredible stamina and insight required to play Tangram – the game that kept the Chinese enthralled for four million millennia", boast Thalion.

Huge income rise for EA

GAMES house Electronic Arts has announced a massive increase in its income for the fourth quarter, fiscal year 1990/1991.

Net income for the quarter ended March 31, 1991 was $2,230,000 compared to $1,407,000 in the same period in 1990, an increase of 58 per cent. The company has indicated that the growth in the March quarter was primarily due to the strong demand of 16-bit products.



Monster of a program

CHILDREN under five years old and older students with learning difficulties are set to benefit from a new piece of software just released for the Amiga by education software house Scetlander (041-357 1659).

Aiming to help pre-reading skills, Mix and Match uses a Loch Ness-like Scottish monster called Maggie to help students recognise, discriminate between and remember pictures, shapes, letters and numbers.

Its three programs – Two of a Kind, Odd One Out and Forget-Me-Not each contain six educational games. Results are recorded, retrieved and printed.

Digitised speech is used to make the program friendly and ideal for the very young. As with earlier Scetlander software, the level of difficulty can be adjusted to suit the ability of the student.

The program has already been translated into Dutch for the Belgian Ministry of Education. It will soon be used in 20 schools and managing director of Scetlander, Ron Lander, is confident that it will eventually be used in every primary school in Dutch-speaking Belgium. The package is available now for £24.99.

WHAT'S new



CDTV goes to school

COMMODORE'S Business Education Challenge has been won by students at Lismore Comprehensive, Drumgask, County Armagh.

The team beat five other finalist teams from UK schools and colleges to win a CDTV and become the first school to receive the machine. The competition had students preparing and performing a marketing plan for their school.

The winning team's teacher Frances McKeown says: "The pupils, knowledge of the various aspects of marketing has increased greatly, They have gained confidence and above all developed close links with local industry."

Better communication

TWO new Pace modems are available from Action Computer Supplies (0800 333 333). The Ultralink Quad and Ultralink Thirty Two have front-panel LCD display showing relevant information.

Both models have MNP level 5 data compression giving throughput of up to 19,200 bits per second and MNP level 4 error correction. Ultralink Quad costs £399 and supports V22bis, V22, V23 and V21 and speeds from 300 to 2,400 baud.

The more expensive Ultralink Thirty Two priced at £779 will automatically dial the PSTN should a leased line fail, but switches back as soon as it is restored.

It boasts baud rates from 300 to 12,000 and supports V32, V22bis, V22, V23 and V21.

Games packed with mice

MOUSE producers Naksha (0925 56398) have signed a bundling deal with games house US Gold to combine some top games with their pointing devices.

Under the deal, Delphine's Operation Stealth will be packaged with Naksha's Upgrade Mouse for the Amiga at a price of £35.24.



More mice

A MOUSE and two track balls are among a range of Taiwanese Amiga products now being distributed in the UK by Gasteiner Technologies (081 365 1151)

The OMM-MT mouse with a six-foot cable length has an ergonomic design and a resolution of 280dpi. There are two microswitch buttons and it has the familiar Naksha-style appearance.

The unit is packaged with a mouse mat and costs £16.95.

Those partial to track balls as a pointing device could take a look at the TKB-MT. It is housed in a stylish two-colour case and has a 200dpi resolution. Like the mouse, this track ball uses micro switches for control.

The cable length of the TKB-MT is three feet and it connects to the Amiga's mouse port. Price, £24.95.

TKB-MT-A is Alfa Data's second track ball. It has a lower resolution of 162dpi and has autofire and key lock functions. Designed for one-hand operation it costs £29.95.

Another product being imported by Gasteiner is RAS-2MB, a ram card for increasing the memory of the A500 up to two megabytes. A battery-backed clock is on board the card and the expanded ram can be disabled at the flick of a switch.

There are four versions of the RAS-2MB. The two megabyte unpopulated board costs £29.95 and a two megabyte populated card has a price tag of £99.95.



Come to the Cabaret

JCL's Cabaret is a new utility program that provides a wide range of facilities for their range of ColourPic and SuperPic Amiga digitisers. The software, including manual, is available to owners of these digitisers for just £5.

Cabaret provides image import facilities together with processing functions that may be used to modify existing pictures – without using the digitiser hardware.

The extensive list of features includes overscan support, software modification of brightness, contrast and colour balance, picture displays in eight modes from HAM, EHB and alike right the way through to two level black and white, plotter support, Sculpt interface, palette lock, flips, image filters for colour and monochrome, picture masking, blending, and much more.

Despite having serious intent, JCL claim Cabaret is simple to use and great fun.

Contact JCL on 0892 75791.

DIARY DATES

9 June 1991
All Formats Computer Fair
Organiser: Bruce Everiss
(0926 640137)
Venue: National Motorcycle Museum, Coventry Road, Solihull
Ideal for those living in the Midlands who are unable to visit the large London shows.

22 June 1991
All Formats Computer Fair
Organiser: Bruce Everiss
(0926 640137)
Venue: New Horticultural Hall, London
An increasing number of public domain libraries are making an effort to attend this event.

12 to 14 July 1991
International Music Show
Organiser: Westland Associates
(071 730 7852)
Venue: Olympia, London
A musician's paradise – Instruments, synthesizers and celebrity visits.

12 to 14 July 1991
4th International 16-Bit Computer Show
Organiser: Westminster Exhibitions(081 549 3444)
Venue: Novotel Hotel, Hammersmith
Scores of exhibitors from Europe and North America meet under one roof.

5 to 8 September 1991
Computer Entertainment Show
Organiser: EMAP
(071 404 4844)
Venue: Earl's Court 2
If you're interested in games then a visit to Earl's Court is a must.

5 to 8 December 1991
Computer Shopper Show
Organiser: Blenheim Online
(081 868 4466)
Venue: Wembley Exhibition Halls
An opportunity to buy some bargains before Christmas. It's expected to be much larger than last year's show.

You deserve the best!

Now you can get the best... with PEN PAL!

A word processor with immense power to deal with most situations and... it includes a Database! It's all so easy to use, you probably won't need to refer to the extensive 250 page manual too often.

Whilst working, you can open up to four documents simultaneously (memory permitting), search and replace; cut, copy and paste; check your spelling with a 100,000+ word dictionary. You can import your favourite IFF/HAM graphics, from programs such as DPaint II or Clip Art, in various sizes and colours. You can automatically flow text around graphics in any Workbench compatible font (there are over 200 available styles), in different sizes and colours to suit your design... even as you type! All this from a word processor and Much Much More!

As you can see, this is not just any ordinary word processor! Full Page View with position, edit and creation of graphic objects. Mail Merge using the built in database and forms designer. Creation of templates for complex reports, into which the database can be merged. Operating with 32 fields per record, and 32,000 records per database with a fast sort of 1000 records in less than 5 seconds this is a *real* database.

Pen Pal requires an Amiga 500/1500/2000 or 3000 with a minimum of 1megabyte available memory.



Pen Pal

When...you deserve the best!

£79.95

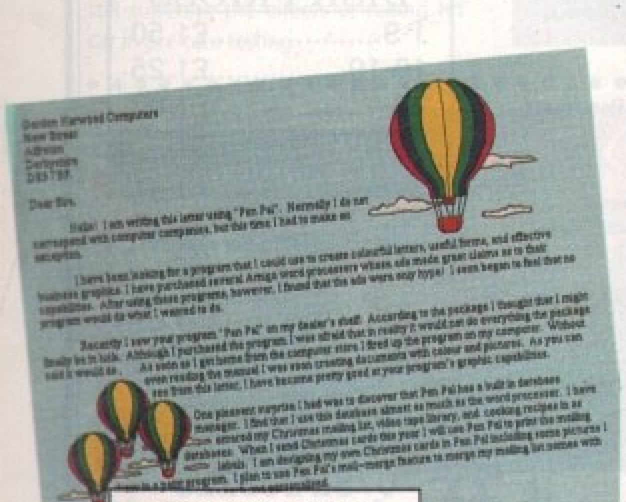
."...its handling of graphics is unsurpassed: Pen Pal is the only program I tested that will automatically wrap text around graphics..."
Amiga World...Jul. '90

."..without beating around the bush Pen Pal is very special.." - "There is little to fault Pen Pal and it deserves to do well."
Amiga Format...Dec. '90

"...I am extremely pleased with your product especially the Graphic Capabilities within the Word Processor. Having the Database on the same disk has made PEN PAL the best program I have..." *D.S.B., Plumstead, LONDON*

"...Please let me tell you how amazed I am at how EASY IT IS TO USE PEN PAL. The manuals supplied are very informative and very clear..."
P.S.S., Clifton, NOTTINGHAM

"...A most excellent piece of software..."
E.P.H.. Strathclyde, SCOTLAND



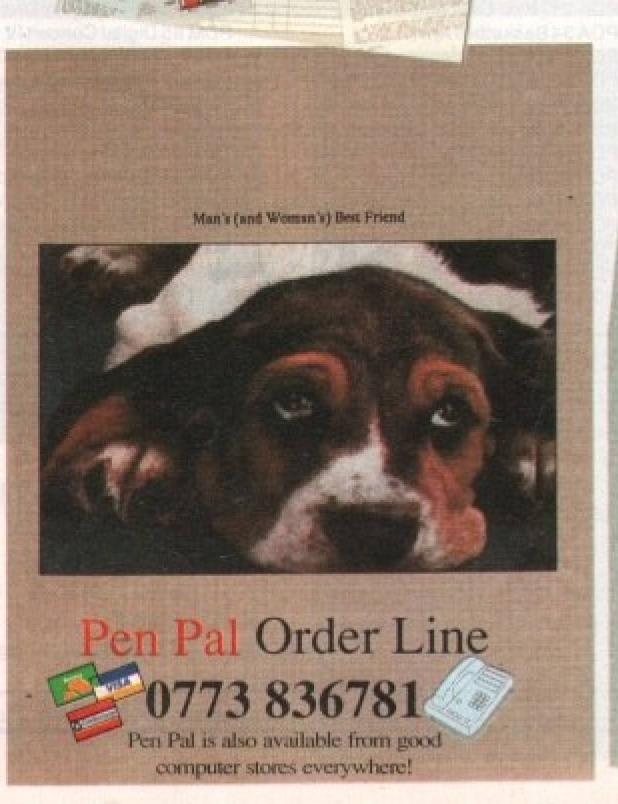
Trade Distributors...

SDL

Precision Software

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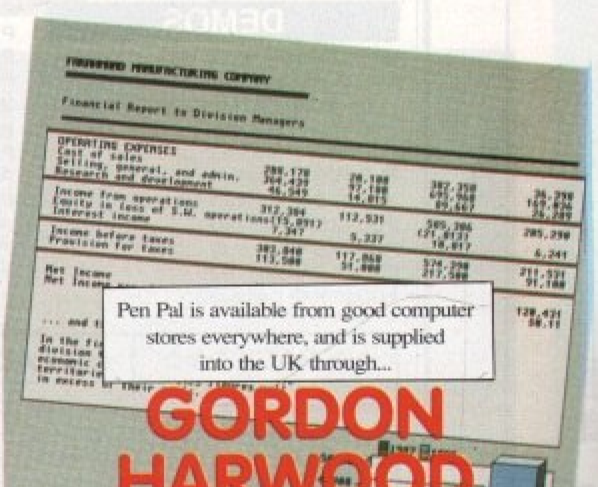
HBM



Pen Pal Order Line

0773 836781

Pen Pal is also available from good computer stores everywhere!



Pen Pal is available from good computer stores everywhere, and is supplied into the UK through...

GORDON HARWOOD Computers

Gordon Harwood Computers
New Street Alfreton Derbyshire
DE5 7BP Fax:0773 831040

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THE ONE STOP SHOP FOR AMIGA PD SOFTWARE

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PDU 10 Word Processing+Databasing
PDU 16 Air Tunnel Simulation
PDU 23 Fish#110 A68K Assembler
PDU 24 Fish#114 C Docs
PDU 26 Fish#133 Console Handler
PDU 27 Fish#136 Create own puzzles
PDU 29 Fish#140/141 SBProlog 2 disks
PDU 31 Fish#143 RIM Database
PDU 32 Fish#144 Analytic spreadsheet
PDU 38 Fish#185 Official CBM IFF disk
PDU 43 Fish#203 Assembler & C eg
PDU 44 Fish#215 Mandelvroom V2.0
PDU 45 Fish#210 Scientific calculator
PDU 46 Fish#213 Icons(300 in 8 colors)
PDU 51 Fish#219 Astronomy program
PDU 52 Fish#52 A-Z Text Editor
PDU 60 Fish# 237 CLIprint
PDU 70 Fish 193 Keymap Editor
PDU 72 SID V1.06 The ultimate disk util.
PDU 74 C-Manual
PDU 78 File Archiver
PDU 80 Fonts and Surfaces
PDU 81 Disksalve 1.3
PDU 82 Scalc,Wordwrite
PDU 98 Celtics Demomaker
PDU 99 Ham Radio utils(5 disks)
PDU 101 Menu-Maker
PDU 102 Label designer
PDU 103 Icon-Maker
PDU 104 Icon-Mania
PDU 105 Crossword Creator
PDU 118 Various CLI utils
PDU 146 Grocery+Video list maker
PDU 149 Icon Fun
PDU 151 Fixdisk-disk repairer
PDU 164 Games Music Creator
PDU 168 Vaccine-Booster(Virus killer)
PDU 169 QuickBase-Database
PDU 171 Fish#315 Draw-map
PDU 175 Fish#288 Plotdata 2D
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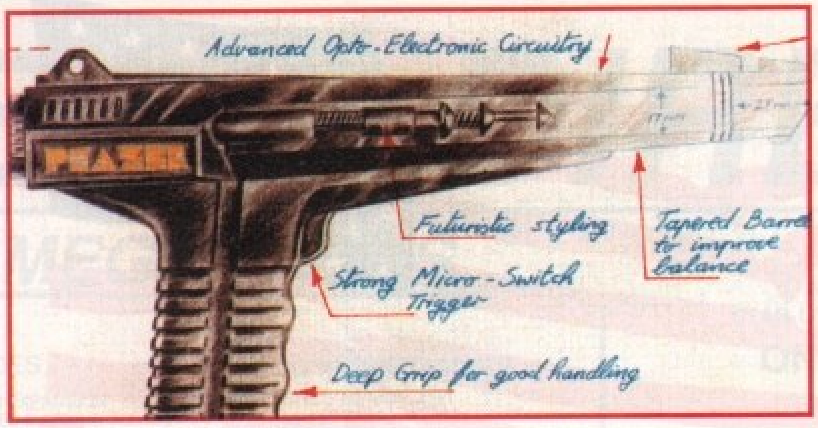
Visionary adventure

ADVENTURE games can be written by both novice and experienced programmers using Aegis Visionary, a new game language released by Long Beach-based Oxxi (010 1 213 427 1227).

It has more than 60 gaming commands and graphical manipulation tools for creating stand-alone commercial quality adventure games with animation, sound and graphics.

The language will support 65,000 rooms, subroutines and vocabulary words with more than four billion characters of text. Larger-than-screen page scrolling is supported in addition to 50 on screen hot-spots and instant image blittering for quick movement of images across the screen.

Once a game has been written it is run through Aegis Visionary's compiler and debugger. It is then run as a stand-alone program. The language is compatible with AudioMaster III sound files and standard ANIM format animations. Amiga Visionary is available now in the States for $99.95.



Light at the end of the tunnel

LIGHT guns are fun to use but the problem is finding software which is compatible with them. Aiming to solve this are Welsh company Trojan (0554 777993) who are soon to launch a Phazar Pack for the Amiga which includes dedicated software.

The two games in the first pack are clay-pigeon game Skeet Shoot and shoot-'em-up Orbital Destroyer. Trojan hope to bring along more of their own games to use with the Phazar gun and also hope to make some existing games compatible. In the UK the Phazar pack costs £39.99.

Also due later this year from Trojan is a light pen for the Amiga said to be compatible with most mouse-driven applications. Trojan name Deluxe Paint III, Music X, Battlechess, Photon Paint and Protext among the compatible programs. The two button pen will cost £39.99 and will probably be bundled with a basic art package.

It should be available in the late summer.



InfoChannel is from Digital Vision, the people behind the stylish Scala display presentation system

More info from the Amiga

AN Amiga computer has been used as the platform for InfoChannel, a graphical network system designed by Norwegian firm Digital Vision.

InfoChannel is a multi-media information system enabling pages of text, illustrations and animations to be transmitted from an Amiga 3000 control centre to a network of satellite Amiga 2000s, Amiga 3000s and in-house television systems. Several corporations are trying the system including Thorn EMI International Rentals.

An Amiga 3000 is at the heart of InfoChannel. The basic A3000 system is fitted with a 68030 processor, two megabytes of memory and a hard disk.

Commodore's technical director Barry Thurston told Amiga Computing: "The Amiga is the only computer designed to work directly with TV signals. This makes the Amiga more cost effective than its competitors and confirms its position as a leading computer for professional broadcast use".

Fast drive from Evesham

Dave Louden scored another fine victory for Team Evesham Micros in the fourth round of the Dunlop Rover 216 GTi Challenge at Silverstone on Sunday 20th May 1991.

Starting from third on the grid, he soon took control of the race and despite a close tussle with Ian Taylor took the chequered flag by a comfortable margin. This result strengthens Dave's already considerable lead in the Championship.

Evesham Micros managing director Richard Austin finished 14th, perhaps still suffering the effects of rolling his car in pre-race testing.





Show gets international favour

MORE than 160 companies are expected to pack into the Novotel Hotel, Hammersmith for the 4th International 16 Bit Computer Fair which is to be held on July 12 to 14.

It promises to attract many international firms from Canada, the United States and mainland Europe and several British companies have confirmed they will unveil new Amiga products.

For more information about the forthcoming event contact show organiser Westminster Exhibitions (081-549 3444).

Divine inspiration

A COMPETITION to find the Best Christian Software writers of 1991 was launched recently at the Christian Resources Exhibition.

Applicants have to write an original piece of Christian software such a computer game, a Bible study aid, database or any other program which could be used by religious education teachers, church workers and members. Entries are invited for a range of home computers including the Amiga.

There are separate categories for individual software writers or groups and in each category there are prizes of cash and software for entrants under 15 years old and those of any age.

A spokesman for the competition organiser Evangeltrust told Amiga Computing: "The competition makes an excellent project for a church youth group, Sunday School or house group. All it needs is one or two people with simple programming skills, plus the enthusiasm and organising abilities to see it through".

Entry forms are available by sending a stamped addressed envelope to Bible Software Competition, Evangeltrust, PO Box 224, Kingston upon Thames, Surrey KT1 2NX. The closing date for entries is December 31, 1991 and the software must have been written this year.

WHAT'S new USA



Denny Atkin brings us the latest news and views every month, direct from the States

Hello from the other side of the pond! I'm the editor of the Amiga Resource section of COMPUTE Magazine, a major U.S. computer magazine based in the warm, humid state of North Carolina. Each month in this column I'll be bringing you all the hot Amiga news and happenings from the United States. This month, though, I thought I'd start with a description of the U.S Amiga situation, and wrap up with the scoop on what may be the hottest U.S.-produced Amiga program of 1991.

PC power

Most American Amiga users are quite jealous of their European counterparts. In the U.S. and Canada, MS-DOS reigns supreme. It's not so much prejudice against the Amiga, it's lack of knowledge about the machine.

If you try to recommend an Amiga system to a friend, you're likely to be answered with the question "Is it IBM-compatible?" Never mind that they might be looking for a machine for the family to use, and that the Amiga might be the perfect machine for their needs. It seems everyone has a secret fear that they just might have to run Lotus someday.

That's not to say there aren't many Amigas in the United States. On the contrary, there are probably about 750,000 Amigas here – a tiny number compared to the installed base of MS-DOS machines, but nothing to cough at. Unfortunately, the number isn't large enough to attract the big-name productivity software companies, so the Amiga is considered a niche-market machine by business users.

Video view

The Amiga is also beginning to make a name for itself in video, thanks to NewTek's Video Toaster card. Many video professionals are replacing $50,000 systems with more-capable Toaster-equipped Amiga systems costing under $10,000. The recent AmigaWorld Expo trade show in New York City was almost completely devoted to video hardware and software, with hardly a game in sight. Genlocks, chroma-key units, and single-frame VCRs are the peripherals of choice for pro Amiga users.

The average Amiga in the States is a 1MB, 2-floppy A500, but hard drives are becoming increasingly more popular. The Amiga 2000 is the choice machine of hobbyists and video professionals, although Commodore's recent price breaks on the Amiga 3000 have increased its popularity dramatically (you can get an A3000/16 for about $1800 through a special trade-in deal).

The game zone

So what DO U.S. Amiga owners use their machines for? A big portion of the market consists of gamers, one category where the Amiga still reigns supreme. As far as most U.S. game producers are concerned, there are only two platforms: MS-DOS and the Amiga. The eight-bit machines are fading fast, with only the Commodore 64 getting a small amount of attention from software developers.

Atari seems to have completely given up on the U.S. market, concentrating their efforts on Europe and the U.K. Many U.S. game companies produce ST versions of their software for the European market, but don't even bother selling those versions here.

The Amiga had the lead over MS-DOS machines until recently. Now, more games are released for the PC platform. However, most of the major domestically-produced games are still released nearly simultaneously for the PC and Amiga. Many U.S. companies also import and re-label European games under their own company names. Hard-core gamers usually buy the PAL versions of the games from importers, though, since it often takes six months or more for the NTSC versions to appear.



Lemmings in the USA

The most popular game in the U.S. right now comes from your side of the pond: Psygnosis' Lemmings. Lucasfilms' Secret of Monkey Island is the current pick of adventure game fans, and the hot flight simulator (this will give you an idea how long we have to wait for U.K. software) is Electronic Arts' F-29 Retaliator.

Here and now

So what's hot for the Amiga in the U.S. right now? Enhanced graphics are all the rage. The most popular units are Black Belt's HAM-E, which gives the Amiga new 256 and 262,000 color modes, and Digital Creations' DCTV, which combines a 4 million-color NTSC frame buffer output with a video digitizer. These units have an advantage over true 24-bit cards since they use video compression algorithms that allow full-screen animation. M.A.S.T.'s Colorburst unit and Impulse's Firecracker 24 board add full 16 million color displays, but don't have the animation capabilities of the other units.

Deluxe Paint

So what can you look forward to from the U.S. soon? The biggest news of 1991 will probably be Electronic Arts' DeluxePaint IV, which should be released in the U.S. around August. I didn't think it would be possible to add many new features to the already fantastic DeluxePaint III, but EA surprised me.

The biggest addition to DPaint IV is HAM support. Painting in the 4096-color HAM mode has never been as easy or as fast. A new Metamorph command lets you create spectacular brush animations – just create two brushes and DPaint will metamorph one brush into the other over a variable number of frames. A new animation mode lets you see ghosted images of previous and following frames – similar to the onion skin feature in Disney's Animation Studio, but in full color.



Deluxe Paint update on the way

You can now draw a stencil onscreen, instead of having to define a set of colors. New paint modes include Translucency, Colorize, Tint, and Shade. DPaint IV will now load IBM 256-color DPaint pictures and convert them to an Amiga graphics mode. And DPaint now supports both normal and severe overscan, in both NTSC and PAL modes. There are a host of other improvements, such as a color mixing palette, an animation control panel, and new dithering options.

Best of all, the retail price in the U.S. hasn't changed from DPaint III ($149), so hopefully the same will be true for you folks.

Well, that's about all the space I have this month. Next month, look forward to news from the Consumer Electronics Show in Chicago, as well as details on AmigaDOS 2.0, which Commodore FINALLY wrapped up at press time.

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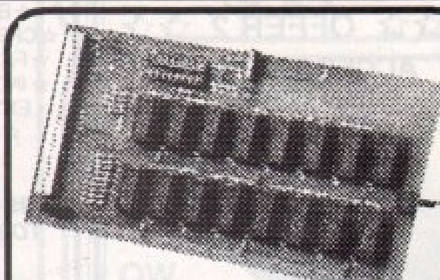
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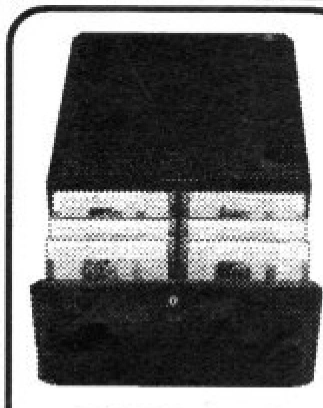
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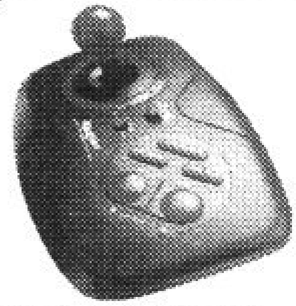
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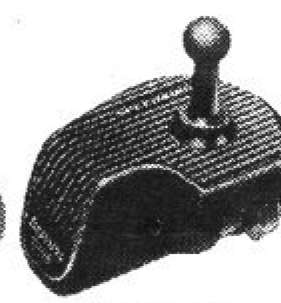
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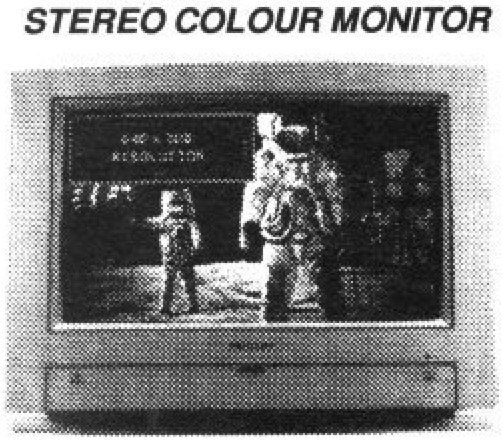
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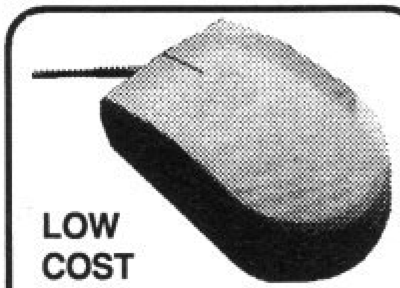
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Ray tracing is much more than just a time-consuming method of duplicating reality. It is, in fact, a window into the virtual world, which already exists and is merely waiting to be explored.

Neither you nor I will ever boldly go where no one has gone before but with the aid of machines like the Amiga we can for the first time see what awaits on the other side of the technological divide.

The present flickering images provided by the purveyors of virtual reality are in many ways similar to the early days of the silent cinema. In time, ray traced images will make up the virtual world, adding light, shade and texture to the sterile environment of today's arcade machines.

When this fateful day arrives all you would-be Captain Kirks will be able to travel the universe with a tactile glove in one hand and a cup of coffee in the other. Unfortunately, we are for the moment limited to still images and the occasional brief excursions into animation thanks to the efforts of the new breed of ray tracing animators.

Mastering the magic

The complexity and quality of high resolution ray traced images tends to prompt two reactions in the observer. First there's the initial jaw dropping amazement, then there's the assumption that such things are strictly for the pros and out of the average Amigan's reach.

The assumption is completely wrong - 90 per cent of the images in this article could have been rendered on a one meg machine. You might be surprised to know that memory isn't a huge problem when you're creating individual images. It's the speed requirements that'll get you.

Ray tracing is something of a cross between photography, engineering and art, but it's the photography element which takes the most time. If you want a very high definition image with complex lighting, and multiple objects with varying materials and textures, the exposure or rendering time can become immense.

On a standard one meg machine some of the more complex images shown would take many hours to render. If you're serious about ray tracing, then, you have to be either very patient or ready to spend a considerable amount of money to speed things up.

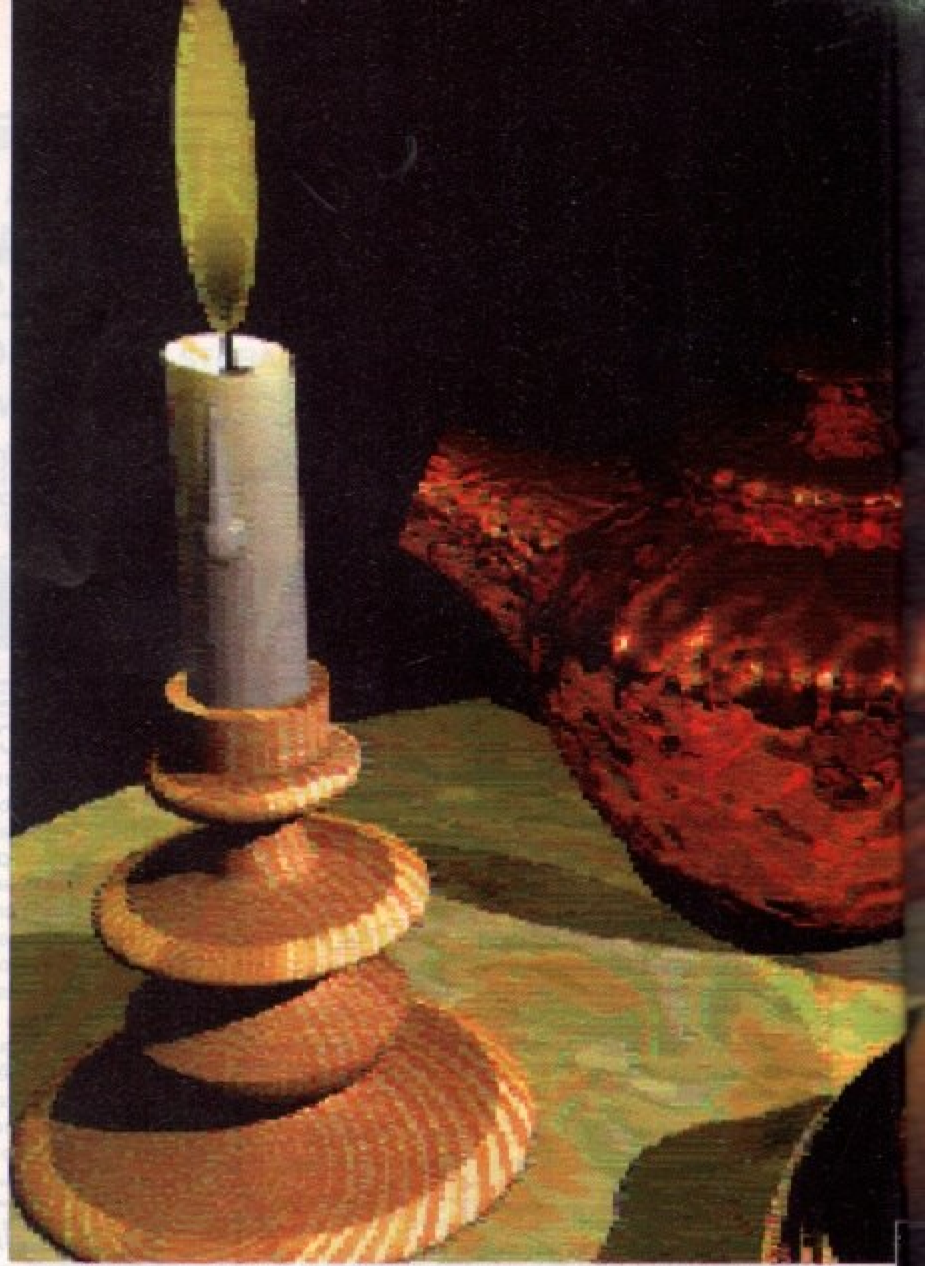
What to look for

Creating and placing three dimensional objects in virtual space is a daunting prospect for anyone who's used to the limitations of two dimensional art and design. In the early days of the art, creation and placement was done via three dimensional x, y, z co-ordinates but the process is now much simpler thanks to the adoption of the engineering drawing technique of orthographic projection.

This method uses three separate windows, each of which shows the three dimensional space from a different direction, making the accurate placement and combination of objects easy. It soon becomes second nature to combine simple objects, or *primitives*, to form complex combinations or, to use the proper title, hierarchical objects.

A good example of a hierarchical object is the magnifying glass we created for this article, which is a combination of the lens, the handle, and a ball. Initially all three were separate objects which were then combined under a new heading to form a hierarchy.

The magnifying glass is now treated as an individual object and can be moved positioned and saved as such.



The combination technique can save a lot of time when you want to make a blanket change to a complex object consisting of many identical parts which thanks to the hierarchy system can now be altered simultaneously.

Even when objects are combined it's still possible to modify or remove any of the component parts. For example, if you wanted to remove and replace a section from one of the two objects created with **Real 3D's** lathe tools it's a simple matter of listing the component primitive and then deleting, replacing or modifying the particular piece in question.

Boolean operations

Boolean or logical operations are an essential feature as they allow you to modify objects by using others as a tool. An example of this technique is shown in the greyscale sphere image which shows obvious signs of interference from its counterparts.

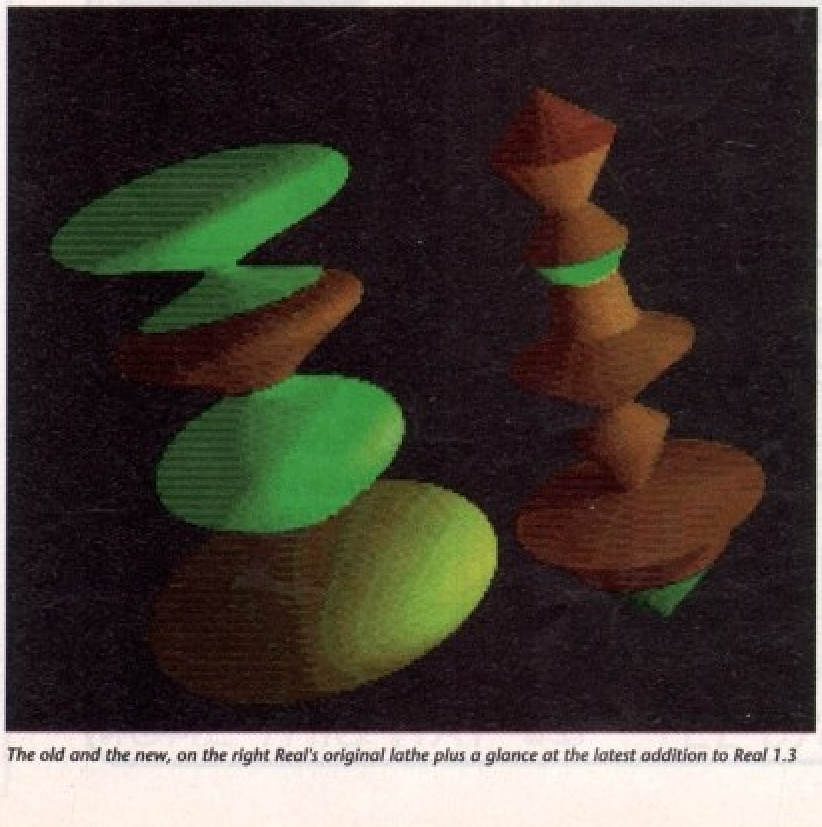
With a little thought, simple primitives can be chiselled into anything you wish and if you want to create technical models this function has to be part of the ray tracing package you choose.

Bumpmaps

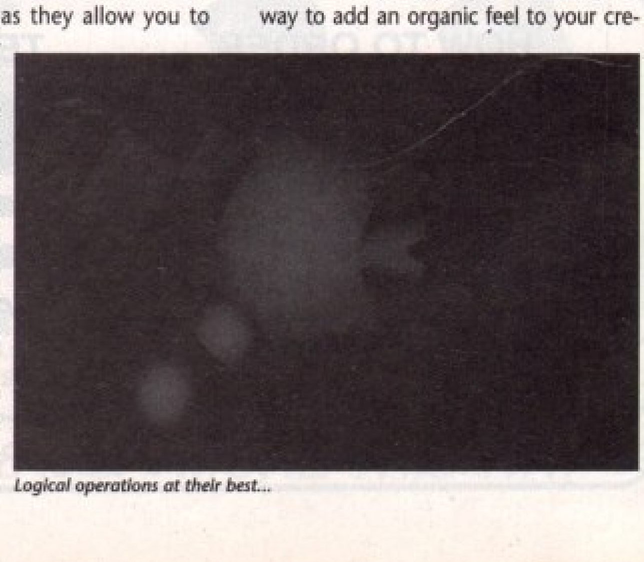
Bumpmaps are a relatively recent development in the surreal world of ray tracing. This curiously named function allows specific surface colours to be drawn up from the surrounding texture or material.

As a result small blisters are formed on the object and when this is lit from a favourable angle the results as you see can be stunning. A fine example of this particular talent comes from the beaten copper tea pot picture in this article.

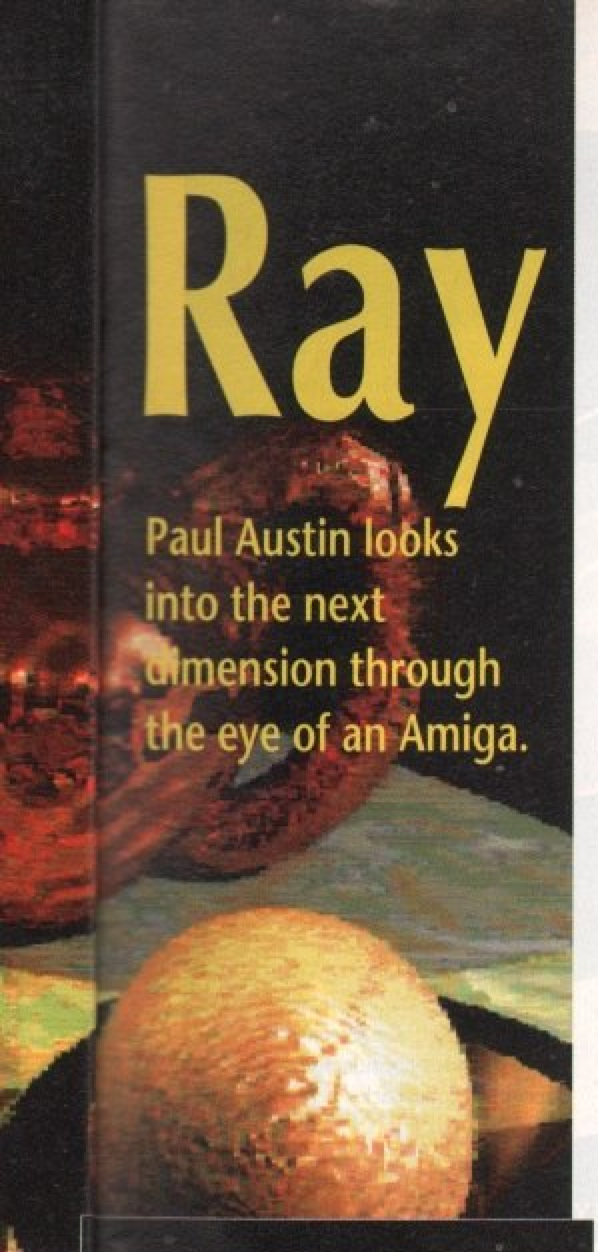
Ray traced images can be a little lifeless, so bumpmapping provides a great way to add an organic feel to your cre-



The old and the new, on the right Real's original lathe plus a glance at the latest addition to Real 1.3



Logical operations at their best...



Ray Tracing... Art, or images of the virtual world?

Paul Austin looks into the next dimension through the eye of an Amiga.



Bump mapped textures bring texture to the virtual world

ations. If you're interested, Imagine and Real 3D are particularly well versed in this department. Be warned if you use large expanses of bumpmaped material, however, as rendering times can be become frightening.

Scratch the surface

All the major packages have a variety of materials as standard which can be applied to objects to create anything from glass to metal. In certain packages, such as Real 3D, it's possible to create your own textures in a standard paint package and to then wrap the results around the objects you create in your own designer environment.

Texture mapping is one of the latest and most powerful tools available and it allows almost limitless interaction between the real and virtual world.

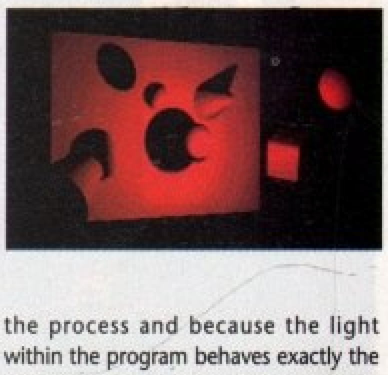
As long as you can create a two-dimensional image in an IFF format, it can be imported into the three-dimensional space. You could, for example, hang a self-portrait on an imaginary wall or perhaps wrap your face around a handmade head.

Real 3D also makes it possible to create or modify the materials of the objects by defining how fast light travels through a transparent surface or perhaps by altering its brilliance so it becomes mirror-like. Any object can become matt or shiny, solid or transparent – the choice is yours.



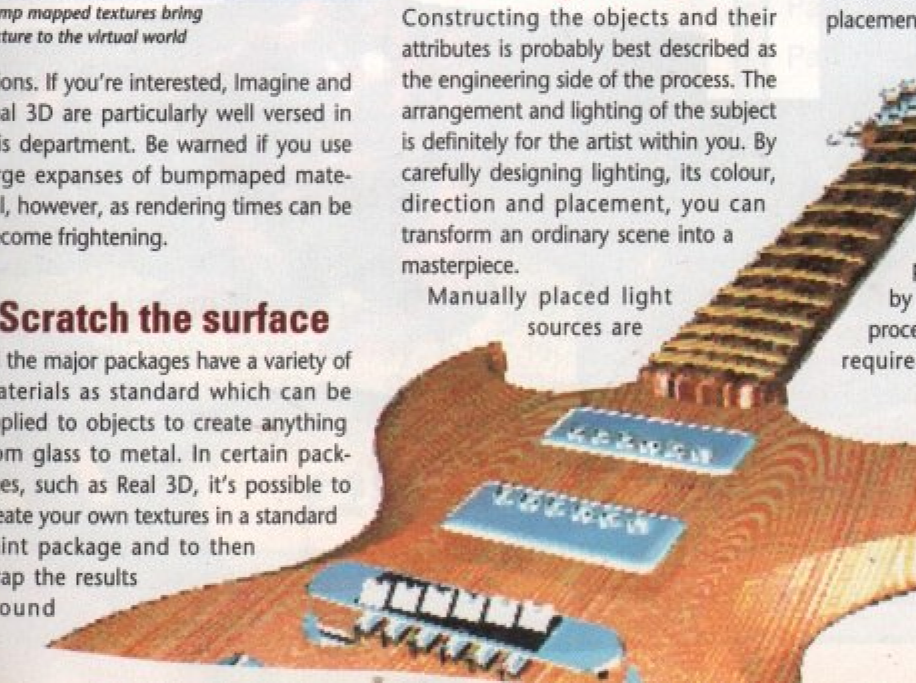


A magnifying glass a mirror and the mysteries of the twilight zone all thanks to ray tracing



Seeing the light

Constructing the objects and their attributes is probably best described as the engineering side of the process. The arrangement and lighting of the subject is definitely for the artist within you. By carefully designing lighting, its colour, direction and placement, you can transform an ordinary scene into a masterpiece.



Manually placed light sources are known as lamps and are the main source of light. As a result, intelligent placement of your lamps can add real atmosphere to an image. In most programs there's a degree of ambient light which can be automatically added by the program or manually adjusted by yourself. An example of this process is the mirror picture which required both types of lighting in order to produce the required reflection.

Lighting design is easily one of the most enthralling aspects of the process and because the light within the program behaves exactly the same as the real thing, it's possible to create all kinds of effects. For example, in the magnifying glass picture the light source had to be shining down from above in order for the lens to magnify the marble plinth.

Another lighting example is the shadow picture which only has one light source hidden away in the middle of the passing objects. It's possible to work out exactly where it's suspended ➤

by the shadows. As you can see, even a simple picture can be made quite dramatic with an unusual lighting arrangement.

A final trick with lights has been applied to the large marble sphere which has been lit by four separate coloured lamps. As you can see, the effect on the original object colour can be quite dramatic.



Time saving

The biggest problem with any ray traced image is the time involved in creating it. If you're lucky enough, not to mention wealthy enough, to own an accelerator, rendering times for most things aren't too bad, but for most of us stuck with the standard Amiga 68000 CPU a full-screen rendering of a single image in the highest resolution can take an entire day.

Fortunately it's not always necessary to work in the highest resolution and as a result all the major packages offer alternative rendering modes. These are not as impressive but are nevertheless great for fine tuning your masterpiece before the painstaking process of rendering to the highest quality takes place.

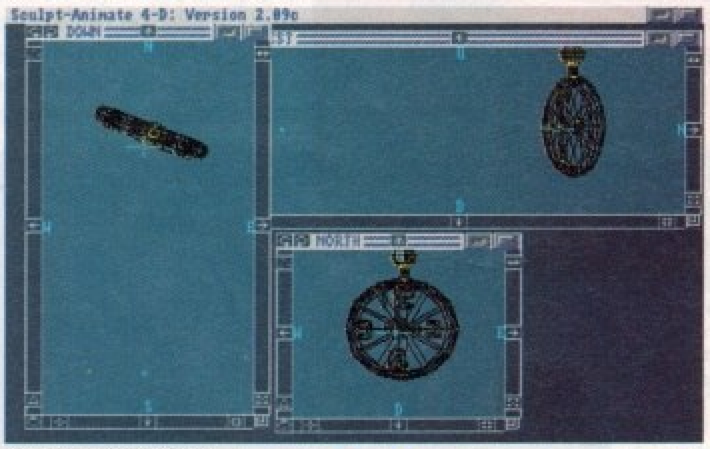
Sculpt, for example, allows you to render the image in a variety of sizes and resolutions, so a quick check could be made in full screen mode utilising the lowest resolution. If you need to see detail but still want to save time you can go for a smaller screen with a much higher resolution. Real 3D has a slightly different approach as by default it will always render a full screen. It's possible, however, to define a box in any area of the screen which will then be the only section to be rendered.

Another great time saver is Real 3D's wireframe mode which allows you to move around and examine the three dimensional space before any rendering takes place.

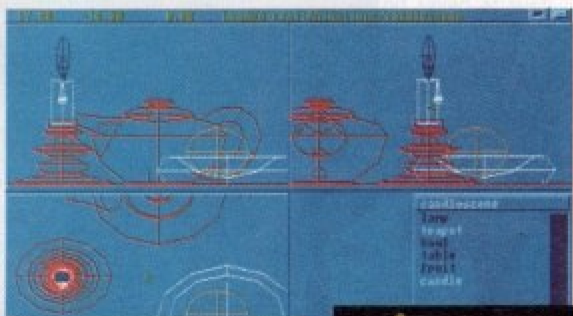
The only real problem with using the lower quality formats is that the material and texture of objects are lost, so to check that the mapping is correct or the material is right you must render in the highest resolution.

The silver bird Sculpt image is a good example of the difference that process acceleration has on rendering. The image was first produced on an Amiga using a 33MHz 68030 accelerator with a 33MHz 68882 maths co-processor plus 4 megabytes of 32-bit memory. With all that expensive muscle the job was done in around 20 minutes.

For some strange reason I decided to use this particular picture as a bench test. As a result exactly the same scene was re-rendered using a standard one meg Amiga. Five hours and about fifteen coffees later it finally arrived and then it had the cheek to tell me there wasn't enough free memory to display the image, I wasn't a happy chappy...



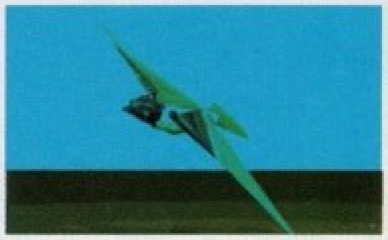
An example of the tri-view design screen in action plus a look at Real 3D's wireframe mode



Animation

Ray traced animation is one of the few Amiga applications that really pushes the machine to its limits for both speed and storage. All the major packages support animation but if you really want to produce high quality moving pictures there's no alternative but to do some serious upgrading. If you want to produce animation sequences in anything more than the lowest resolution one meg will not be enough.

Unlike individual still pictures, animation sequences are extremely memory intensive. This is not brought about by the rendering but rather the playback. To play back any ray traced animation it must be loaded into ram.



As you can imagine, big anims mean big ram and with some programs *very* big ram would be a more accurate description.

Imagine and Real 3D are fine examples of big ram users. Both have very impressive and easy to use animation sections but store their frames using a sequential method which requires an entire image for each individual frame of the action.

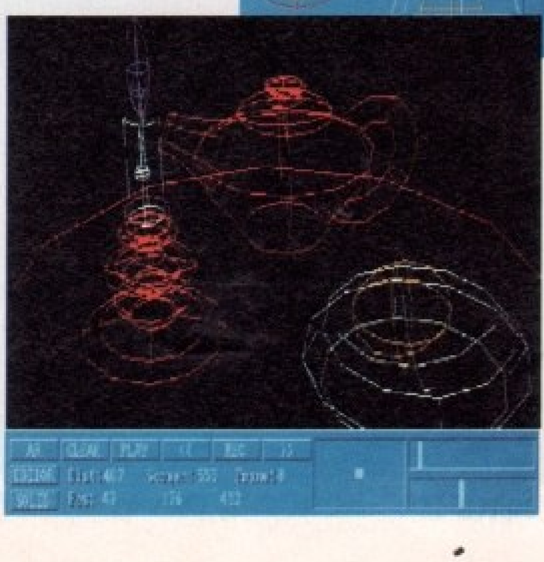
TV, for example, runs at 25 frames per second and most vector graphic games aim for a minimum of 10 FPS, so as you can imagine a reasonably long animation using full-screen Ham images would need a considerable amount of free ram for playback.

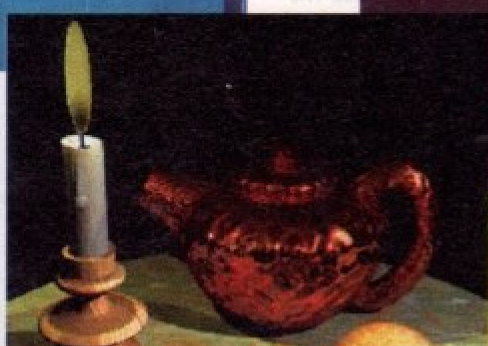
Save space

It's not all doom and gloom for the would-be animator as it's quite possible to produce reasonable quality animation with a little compromise on either the image size or resolution.

If compromise isn't your style there is an alternative ray tracing package that's specifically designed to combat the problems of animation.

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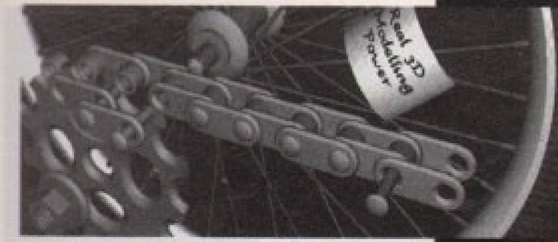
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A commercial example of greyscale in action



Texture mapping made easier, from marble to metal with a move of the mouse

4D professional formats. As the name suggests, both have animation high on their list of priorities. It's perhaps a little misleading to mention Sculpt under the heading of *concession software* as it's responsible for such classics as the Juggler demo which back in 1986 really launched the Amiga as the premier ray tracing machine.

Up to as little as a year ago Sculpt was the premier ray tracing package in all departments, not just animation. Since the introduction of texture and bump-mapping on other packages, however, its dominance over the static side of the art form has been destroyed. In the animation department Sculpt is still the one to go for if you want lengthy sequences. It uses a method called 'delta compression' which rather than replacing the previous frame with another, simply substitutes only those parts of the previous frame which have been altered by the transition to the next.



As a result of delta compression, sequences with limited movement can run for thirty seconds rather than three seconds, and in exactly the same amount of memory.

In general, the animation side of Sculpt is far more comprehensive than most packages, and features several formats and techniques which can combine to create very complex image transition.

If you plan to work with video the ➤

COVER STORY!

How the images in the mind of the machine came to the printed page

As you probably noticed, this month's cover is a fine example of the art of ray tracing, but it's more than that. It is in fact a combination of several techniques combined to produce the overall effect, all applied by the Amiga of course.

Ray tracing isn't totally in a world of its own and if you want to avoid the trap of the chequered landscape which all too often swallows up the unwary artist other techniques can be utilised to enhance the final image.

Perhaps the most striking feature of the cover has to be the tribute to this month's flight simulation special. You may have seen this particular plane before but for our requirements it has been rescaled and orientated to suit the cover.

The ability to keep objects on file is one of the great strengths of ray tracing. In effect, once you've gone through the time-consuming process of creating something it can be stored as an individual item and then used later as a potential prop in a subsequent creation.

The plane is the first part of the ray tracing element but within the same scene the AC logo also had to be constructed from a combination of glass materials. The actual shape of the lettering is provided by a three dimensional font. Most ray tracing programs can import 3D fonts, with Sculpt being perhaps the most well endowed of them all.

In the case of the cover our particular enhancement takes the form of the sky background which, rather than being texture mapped into the ray tracing, is in fact a scanned image of a high quality print, onto which the ray traced elements have been overlaid.

The reason for overlaying rather than mapping is simply a matter of convenience. Each element of the image arrived as an individual part and as a result could be placed wherever uncle Mike in the art department wanted. To place the various parts of the image correctly The Art Department Professional (ADPro) was put to work to combine the various elements of the image. ADPro is perhaps the ultimate solution to all manner of Amigan art and composition problems, and as a result it's a perfect complement for ray tracing and general graphics applications.

If the prospect of becoming destitute thanks to the asking price of ADPro scares you to death you could always compromise by utilising the cheaper if less versatile talents of a Ham-compatible paint package such as Spectracolor, Photon Paint, or Digipaint.

In order to get the highest possible quality, all the image data was produced in 24-bit colour. To produce a 24-bit image for the cover, each of the ray traced elements had to be saved in Sculpt's raw RGB format. 24-bit images can't be displayed directly by the Amiga so it was time to enlist the help of the Harlequin frame buffer which happily displays 24-bit data in over 16 million colours.

Most of the main ray tracing packages support 24-bit as a potential saving format and if you need the highest possible output quality for broadcast or printing purposes it's quite simply the ultimate method of displaying your work.

Perhaps the most powerful combination of ray tracing and 24-bit colour comes from Amiga Centre Scotland who now offer a 68030 version of Real 3D directly linked to the Harlequin for instant 24-bit display.

All change

Before our Sculpt data could go to the Harlequin it first had to be translated via the very impressive ImageLink software which accompanies the Harlequin and can convert graphic output from almost any format into another. In our case it was from Sculpt's raw RGB to Harlequin's own display format.

Later in the process ImageLink was used again to transfer the 683k of Amiga 24-bit data to a massive two-and-a-half megabytes of TIFF file to be read by the ever wasteful Apple Mac.



The Mac was put to work to produce the text and the final separation for the printers.

Even this final piece of the puzzle could have been done by the Amiga with the aid of ADPro, but art editors like Macs, printers like Macs and publishers like Macs, so I think I'll stop this train of thought before I write myself out of a job.

If we ignore the final deviation from the Amigan path to publishing I think you'll agree that this month's cover finally puts the argument about the Amiga's professional publishing abilities to rest. It's true you could do the same with other machines but you'd need to spend five times as much cash to do it. I rest my case.

limitations of packages like Real 3D and Imagine can be avoided with a little careful cutting, but whatever package you go for remember that without acceleration a few hundred frames of hi-res imagery would literally tie up your machine for a week.

Help from hardware

As you can't fail to have noticed, choosing your package is merely the beginning as far as ray tracing is concerned. Once you've explored the software and realised the potential power it provides, the next and almost inevitable step is to upgrade your machine to meet the challenge.

This doesn't have to be as expensive as it sounds. The first thing to consider is your particular forte. If animation's you're thing extra ram has to be your priority, as you can always let things render overnight without an accelerator. If you're a single image artist, acceleration is the priority as detail requiring hi-res and hi-res means time. Of course when the cash flow allows both options are an absolute must.

The high end

At present the ultimate answer to reducing rendering time has to be a 68030 CPU with a 68882 FPU. To most people such blatant techno-jargon means nothing, but in real terms such equipment speeds things up between 15 and 20 times.

If your budget won't stretch to a 68030 card, there are cheaper and slower alternatives which use a 68020 and a 68881 FPU.

Many of the packages support these power boards and a large number of the professional versions require them as standard.

If you're not only wealthy but patient it might be worth waiting for the next generation of 68040 boards which are boasting acceleration times five times that of the 68030s.

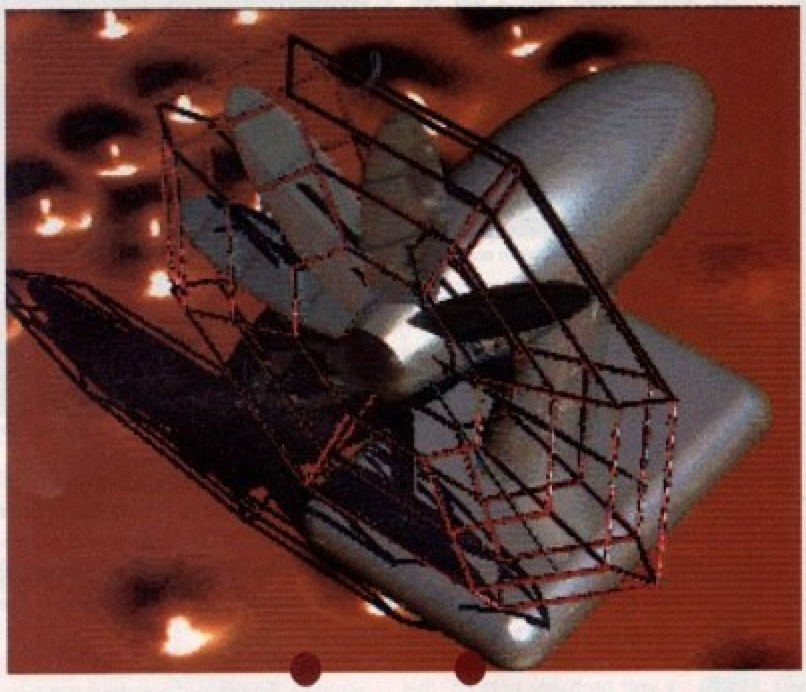
At this very moment fist fights are breaking out between developers for access to 68040s so it may be a while before they're generally available. When they are you'll more than likely be looking at £2,000 for the privilege of owning one with a couple of meg of 32-bit memory attached.

The low end

If the prospect of spending £2,000 on a board is as alien to you as it is to me, don't despair. Considerable improvements can be made for a fraction of the price.

A fatter Agnus is a good start which could perhaps be enhanced with the likes of ICD's Adspeed. For a full rundown of reasonably priced accelerators dig out or order the April issue of *AC* which has a feature dedicated to the subject of acceleration.

Henri Bujko of Alternative Image reflects on the changing face of ray tracing



The pro's opinions

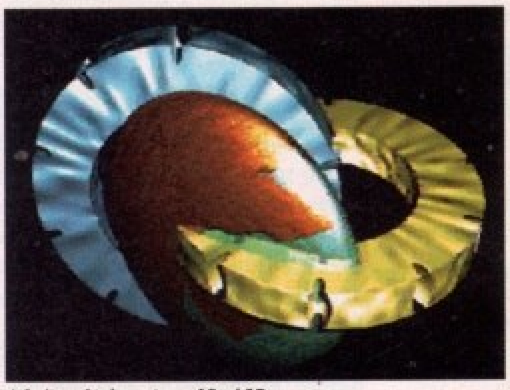
What's round, shiny, has 200 faces and is utterly pointless? Yes, you guessed it, a mirrored ball on a chequered landscape.

In the last two to three years probably the first picture anyone with more than a passing interest in computer art has attempted to render is a mirrored ball hovering over a ground plane of chequered squares.

Even today you can still see images and animations in magazines and public domain software that either solely feature this remarkable phenomenon, or pay homage by featuring something or someone juggling with reflective objects.

Now before you cast the first bumpmapped stone, remember that we are all guilty, having at some time in our rendering lives, be it amateur or professional, reflected on this act.

But there's more to life than balls and somewhere in our deepest recesses the Rembrandt lurks in us all. The stuff we see on television looks amazing and, let's face it, we can use DPaint III to title our videos with multi-coloured ducking and diving graphics, so why can't we have a go at 3D animations that are creative, mind blowing and will seriously impress our friends, family and, more importantly, a potential buyer?



A fruit cocktail courtesy of Real 3D

Well, once upon a time there existed a rather interesting and splendidly titled package called **Videoscape 3D**. This was the first modelling, rendering and animation software available for the Amiga.

Obviously anyone with a surface-mapped brain cell bought the package, and leapt head first into this enigmatic world only to be assaulted with oddball programmes called OCT and EGG, plus a large graphical panel that looked impressive but needed input in the form of models – objects – shapes, any damn thing so long as the program could accept it.

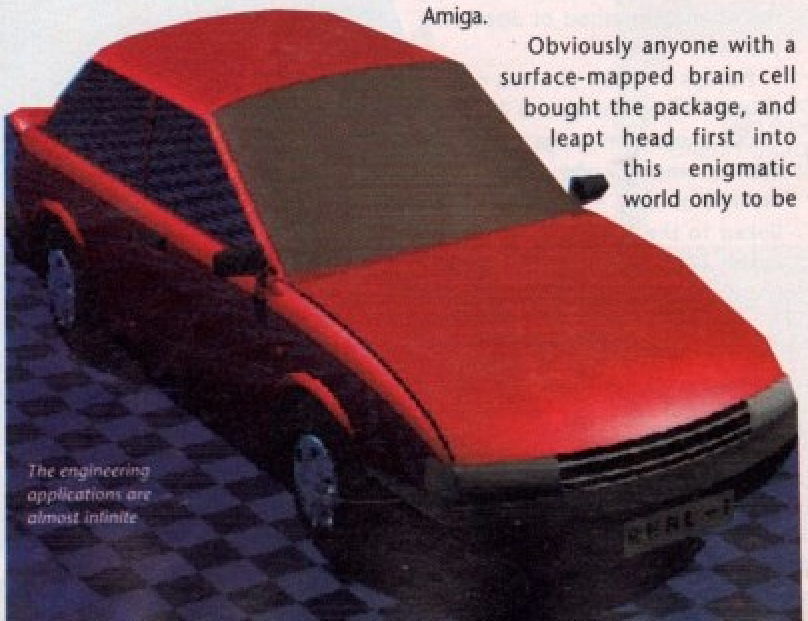
With the help of the Easy Geometry generator, the objects composition tool and a book of graph paper from W.H. Smith, your dreams of rotating cubes in space could be realised. But alas, many brains fell to the wayside, after all this incarnation. The programme demanded you understood spaces, volumes and actions, all controlled by masses of co-ordinates.

For the survivors, the whole procedure seemed totally natural but the side effects of realising every action in Cartesian co-ordinates made sleeping at night rather difficult due to the infinite number of X,Y,Z figures rotating in your mind.

The final version of **Videoscape 3D** offered a better rendering system by employing Ham mode with phong shading which fooled most people into thinking you were using Sculpt 3D.

On the animation front you'd be hard pushed to find a program, even now, that could produce such extremely complex hierarchical motion quite so easily and efficiently. *Be warned* - you will need a thorough understanding of the way the program works to maximise its potential.

On that heavy note we enter the world of ray tracing – no, not your local ventriloquist but a method of representing the real world and all its surface properties by following the paths of light rays, as pioneered on the Amiga



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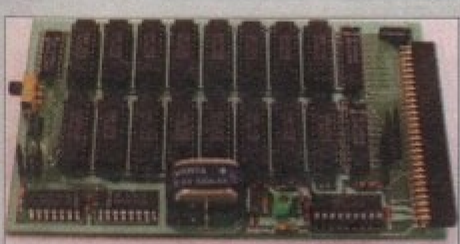
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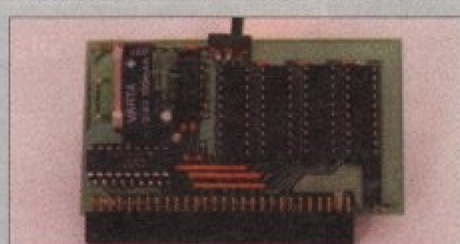
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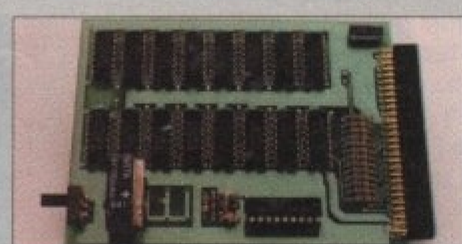
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by programs such as Sculpt 3D and Turbo Silver.

Both these programs have evolved over the years and are now available in their ultimate forms as Sculpt 4D and Turbo Silver 3.0.

Sculpt 4D

Sculpt is a lovely program to use, and was once the standard by which all other programs were measured. Unfortunately, its pole position has since gone to more technically advanced opposition, a demise hastened through Byte by Byte's decision to develop the programme primarily for the Mac. Nevertheless, it's still around and available in the latest 2.09 version.

It still has a superb object modelling environment and a reasonable path and keyframe animation facility, albeit slightly long winded.

The rendering is good but ultimately lacks texture mapping, greater variety of materials, faster rendering and all the other marvellous techniques needed to give your images a different look. Nevertheless, Sculpt 4D is a great program and an essential if you're at all interested in logo work.

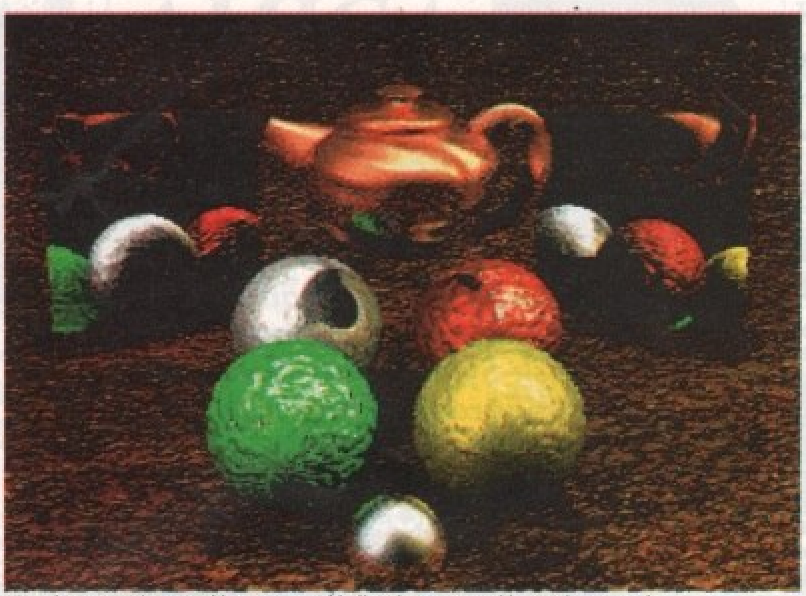
Turbo Silver

OK, what can one say? Nice rendering, shame about the rest. Silver suffers essentially from an interface that was obviously designed by Mr Spock's mutant half-brother. Complex, irrational, and pointless are words that spring to mind.

Avoid it at all costs unless you are truly an Amiga nutter with nothing else in your life, or enjoy complex programs so much that you spend most of your time with your eyeballs super-glued to the monitor.

Silver, however, can and has produced some truly awe-inspiring images. Its texture mapping and surface attribute definition is astonishing. Try to see Bradley W. Schenk's work on disk or in the American *Amiga World* magazine, and witness either a genius at work or perhaps a very sad man with nothing else in his life.

As far as animation goes, don't expect much. Sculpt may not have the texture mapping but its animation facilities are far superior.



Virtual teapots mirrors and bump mapped balls, what more could mortal man need

State of the art...

Just recently the producers of Turbo Silver, namely Impulse, have released a programme that combines their earlier efforts with a touch of radical thinking, and as a result we have Imagine.

Yet again the flexibility and opportunities of the program seem, on the face of it, quite daunting, but a closer examination reveals a very powerful and intuitive front-end backed by a flexible, high-quality rendering system.

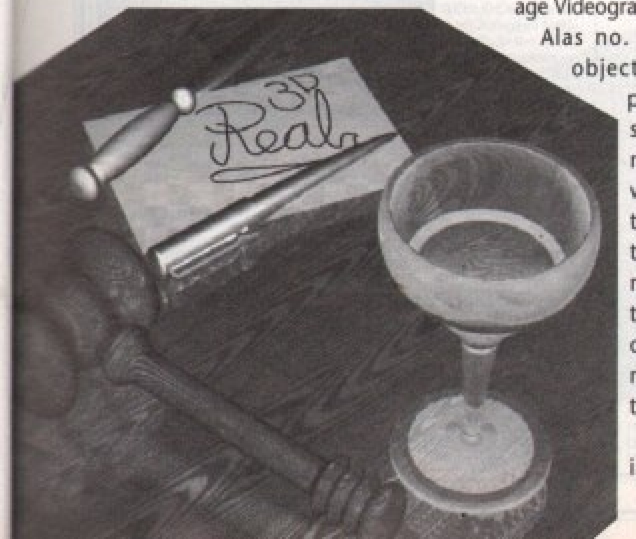
The program allows the production of unusual organic forms, vibrant and exciting surfaces and theatrically orientated animation techniques.

The editor, being a tri-view, stylistically doesn't seem to depart from the norm, but the inner workings offer possibilities that Sculpt 4D can't even hint at. Even the animation facilities make some of the other competitors seem a tad lacking.

3D Professional

3D Pro is a program that in its present form doesn't break any rules but in the main merely tries to develop half-baked ones. Initially on viewing the packaging, looking at the supplied video and leafing through the *I used to be a rain forest* manual, you would think that Nirvana has finally arrived for the average Videographer.

Alas no. A fundamentally weak object editor section and a painfully slow rendering system hold back this technically over-specified software. Problems like the fact that its supplied internal textures such as wood and marble are referenced to their origin and not to the object they are placed on, negate any serious animation possibilities.



The rendering, considering the options available, still resembles at best a scanline snapshot version of Sculpt with just a few textures thrown in, but it takes equally as long to render as Sculpt does in its full trace photo-mode.



Regardless of these criticisms Progressive Peripherals are shortly about to release a 2.0 version of the program which should address all of its shortcomings and add bump-mapping, proper handling of textures, more surface definition parameters, better editing and much improved rendering speeds.

Hopefully, this should benefit the ray tracing part of the program, which demands faster algorithms because even though the rendering quality is high, the speed is not. One and a half hours on a 68030-based Amiga is nothing to write home about.

If the serious shortcomings are addressed, it could be that an excellent program is about to join the widening throng.

Real 3D

Real 3D's initial release provoked feelings ranging from "it's crap" to "it's astonishing". The truth is that it is a true departure from the norm, not because of its tri-view editor, but because solid modelling has finally come of age and the idea of Boolean mathematics gives the user the ability to use objects as tools to shape and cut surfaces.

Texture mapping with ease is the name of the game, as IFFs flow around Real 3D shapes and produce lighting arrangements that accurately mimic reality. What initially held the package back was the lack of support and a tendency to be over-critical about the object editor.

The latest and eagerly awaited 1.3 version of Real 3D is certainly worth the wait. A much improved object editor window allows a wider variety of shapes to be produced, including polygonal extrusion and a fantastic texture and surface attributes menu which is genuinely easy to use, yet gives you the ability to create images the like of which you could not possibly get from any other program.

The bumpmapping is extremely powerful and seductive and the quality of the rendered image, with eight levels of anti-aliasing, makes the need to own a hi-res graphics card a distant memory.

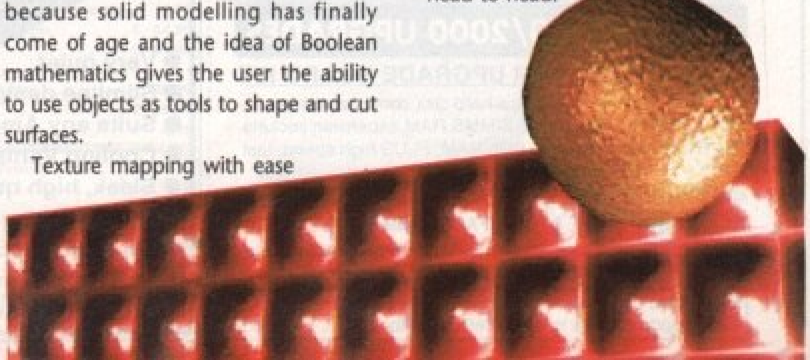
So that's about all I'm allowed to say, your honour. I should also mention Page-Render3D from Mindware, which is an interesting program in that it allows very precise and complex animations to be realised.

Unfortunately, if calculating the square cogent albedo of the fourth chaos particle in Alpha Beta isn't your bag (Eh? – Ed), then stay well clear. Also look out for Animation Journeyman by Hash Enterprises for a rather different organic character animation program. Ask your milkman for Goldtop and oh, by the way, what pours drinks, is marbled and sits on rippled landscapes? Could it be a teapot? And if so will it take over from the chrome ball as the ultimate ray tracing cliché?

Coming attractions

If this little feature has merely whetted your appetite for the virtual world, next month's issue will be a must for anyone who wants to dabble in three dimensions and still avoid the heavy dependence on time and money brought on by ray tracing.

We'll be featuring the definitive guide to 3D modelling and animation plus a follow-up to this month's feature with a report on the clash of the giants as Imagine and Real 3D 1.3 are put head-to-head.



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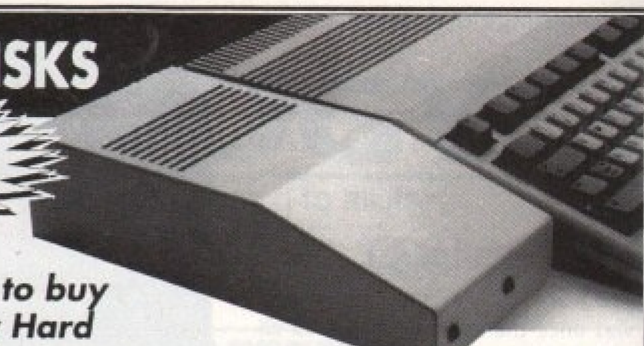
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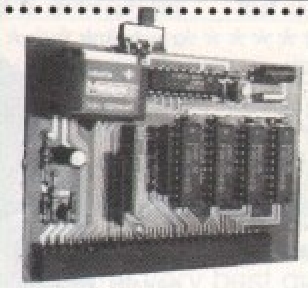
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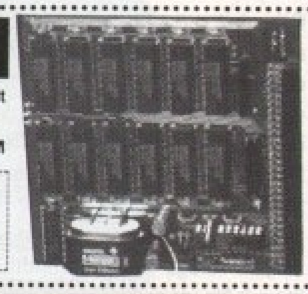
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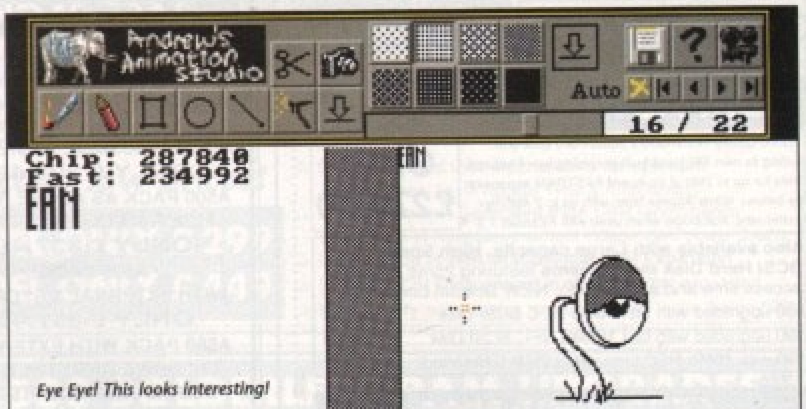
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Andrew's Animation Studio



Eye Eye! This looks interesting!

Create your own cartoon capers with Andrew Forrest's superb animation utility

THE

If you enjoyed our recent animation feature and fancy yourself as a bit of a Chuck Jones, but would rather not raid the piggy bank for Disney's Animation Studio or DPaint III, then you're in luck! Andrew's Animation Studio (AAS) is an easy-to-use utility which allows you to create and play back animations to your heart's content.

The program can be started either by clicking on its Animation.AMOS icon, or by typing

```
CD SYS:UTILITIES/ANIMSTUDIO <RETURN>
RAMOS1.23 ANIMATION.AMOS <RETURN>
```

while in the CLI window left open at the bottom of the disk's Workbench screen.

The advantage of the latter method is that A500 owners can load AAS using as little memory as possible, thus leaving more space for animations. By loading AAS through the CLI, users of unexpanded A500's will have 85k ram free for animations, but only 35k if they go through the full Workbench route.

One other point to note is that when AAS is run from Workbench, and the user attempts to quit out of the program, it blanks the screen and crashes, even though in every other respect AAS behaves perfectly well. If run from CLI, no such problem arises. AAS is a PD program with a shareware option. In other words, if you like it and intend to use it, you should contact the author at the address supplied in the documentation on the disk and send him some cash.



The simple walk animation...

Minor moans

We'll have to come clean and admit that AAS has two minor drawbacks. The first is that it can only use black and white – no fancy coloured cartoons with this program!

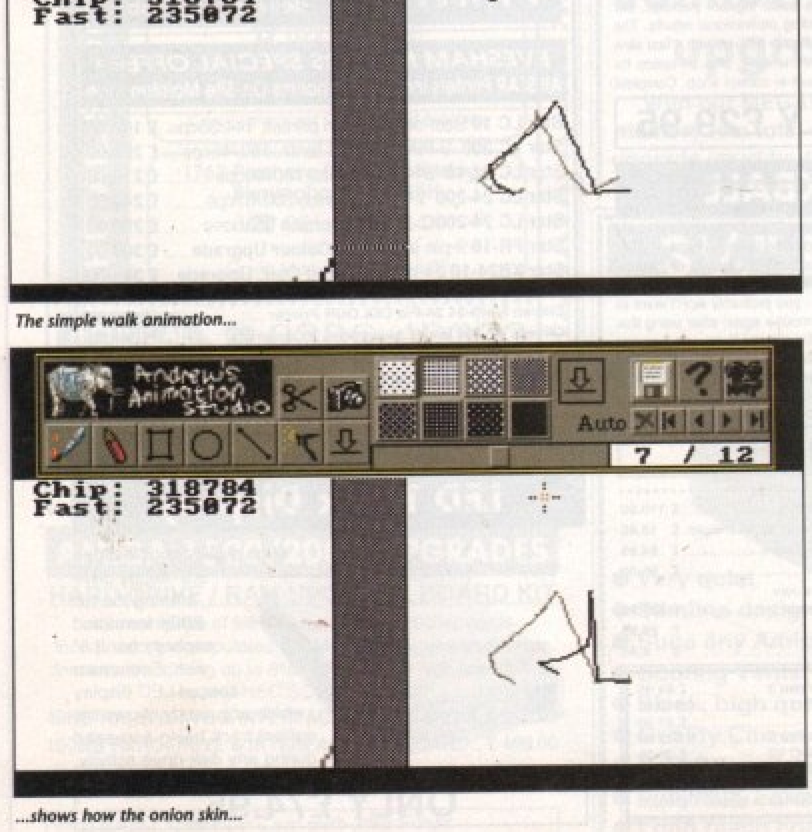
The second, and more serious, is that it doesn't support DPaint's IFF ANIM format. Instead it has its own file format which means that your animations will only ever run in AAS.

This, however, shouldn't deter the user to any great degree. Remember that Andrew's Animation Studio is designed as an easy-to-use animation prototyper with which you can have a lot of easy fun, and that it is FREE (with a shareware option).

Once loaded, the main screen is split broadly into two parts. The bottom half consists of two panels, the right hand for drawing and displaying frames, and the left hand for zooming in and displaying the amount of memory available to the animator. The top half is a bit more complex, but most of its gadgets are fairly self-explanatory and most should be familiar to anyone who has used a paint package.

Tools for 'toons

On the left hand side, clustered around the elephantine logo, there are nine gadgets which control the program's

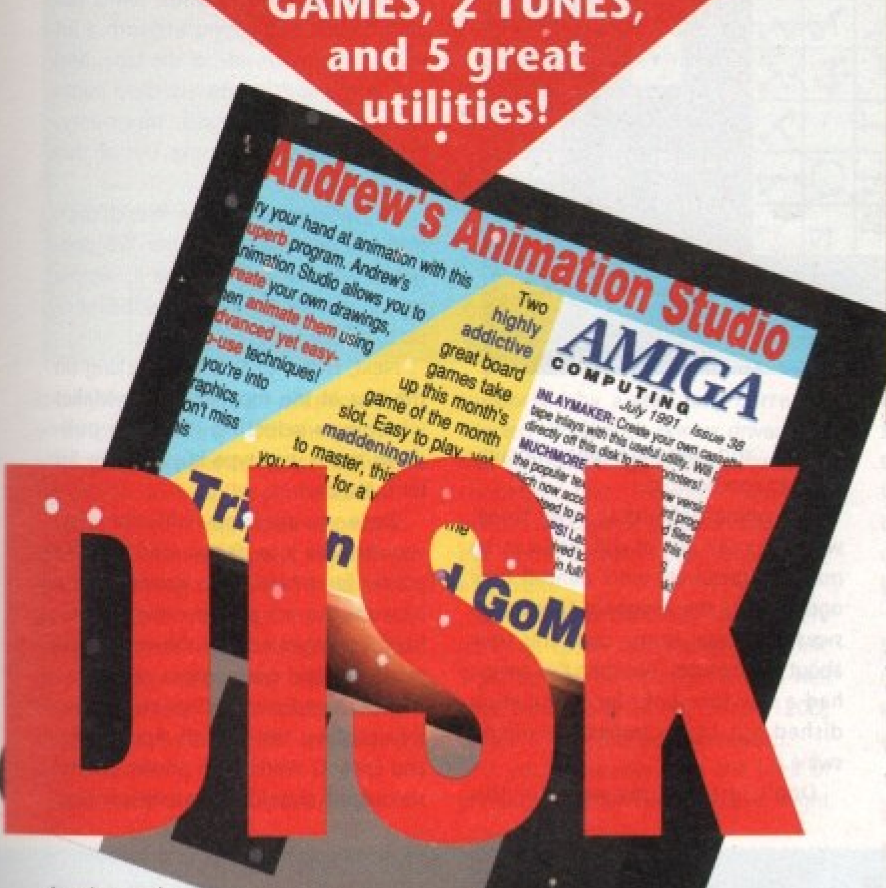


...shows how the onion skin...



...effect can be useful

The Disk that no drive can afford to be without – because it's free! 2 FULL GAMES, 2 TUNES, and 5 great utilities!



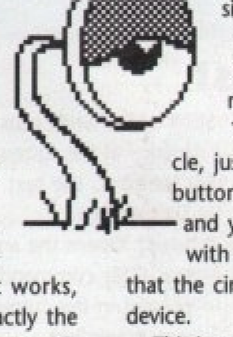
DISK

drawing tools, all of which are accessible at the click of a mouse button.

The box with the scissors in it is the Cut tool. By clicking on this, then holding down the left mouse button and dragging the pointer, an area of the current frame can be cut out.

This is stored in AAS's clipboard in memory until needed again, but can be pasted back down immediately simply by clicking the mouse button. The camera icon to the right of the Cut tool is the Copy function, and performs the same service without the need to cut anything out of the frame.

This is very useful if, for instance, you have an object which appears unchanged for several frames. Using the Copy tool, you can simply draw the object once, then copy and paste it into as many frames as you like.



The first icon on the bottom row of tools is the Fill tool, represented here by a brush. It works, you'll be glad to know, in exactly the same way as any fill tool, except with this one you can use a pattern fill.

Click on the icon, then in the area you'd like to fill, and it will be filled with whichever pattern is presently active. You can see the range of available patterns to the right of the tool cluster. The freehand drawing gadget is next in line, and is easily recognisable as the pencil icon. By clicking with the left mouse button on this icon, you can draw freehand shapes in the time-honoured fashion. The gadget, however, doubles as an Erase function when clicked upon with the right mouse button, making it ideal for small corrections.

The next two gadgets are for drawing boxes and circles, and both have a double-up function as filled boxes and circles. To draw a simple box or circle, click on the left hand mouse button, then drag the figure to the required size.

To create a filled box or circle, just click on the right mouse button when selecting the icon, and your figure will appear filled with the current pattern. Note that the circle device is also an ellipse device.

This is a bit of a drag when you want a perfect circle as you have to judge for yourself whether or not it is slightly ellipsoid. On the other hand, however, it's quite useful to have both on one icon, so the lack of separate gadgets isn't really a problem.

The next two tools are about as self-explanatory as you'll ever get. The Straight Line tool and the Airbrush tool are illustrated by icons containing, surprisingly enough, a straight line and an airbrush. The last icon, depicting the Paste fuction, is a little more obscure.

It is automatically selected whenever you use the Cut tool, unless you subsequently choose another tool, but is included in case you want to paste down something several actions after it was cut out and saved to the clipboard.

Get things moving!

Moving on to the right hand side of the control panel, you will find AAS's control gadgets. There are icons for moving through and controlling the animation, loading from and saving to disk, and all the usual program options.

The first function among these that you're likely to need is the one which adds another frame to your animation. This is achieved by clicking on the paste gadget with the right mouse button to bring up the paste menu, then selecting 'Insert a new frame'. Clicking in a similar fashion with the right mouse button on the Cut and Copy gadgets will bring up, in turn, the Cut and Copy menus containing many vital frame manipulation options.

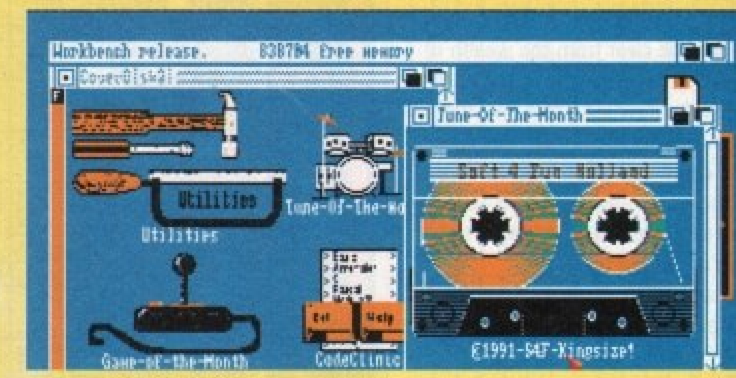
The Disk, Miscellaneous, and Play menus are accessed with the right hand button from the disk icon, the one with the question mark, and the cine-camera icon respectively. Between them, they offer as many options as the user could wish for in the way of standard program controls.

Ghostly Onions

In addition, AAS has a 'ghosting', or 'onion skin' feature enabling a faint image of the previous frame to be viewed through the current frame. This is an invaluable tool because by using it ➤

Tune-Of-The-Month: Kingsize!

Author: S4F of Holland



You bet it's Kingsize! This 108k tune utilises fifteen samples to achieve a smooth jazzy sound totally unlike the run-of-the-mill sequenced tunes.

Kingsize is another fine example of the sort of quality music you can create on your Amiga with nothing more than MED (from our coverdisk) and a few disks of PD samples. Oh, and a lot of musical talent as well!

How to use The Disk

First of all, you must make a back-up copy of the coverdisk. To do this, boot-up with your copy of Workbench, then double click on the Workbench disk icon, followed by the Shell or CLI icon. Now type:

DISKCOPY FROM DF0: TO DF0:

or, if you have an extra disk drive, put a blank, formatted disk in DF1: and type:

DISKCOPY FROM DF0: TO DF1:

Follow the on-screen prompts until the copying procedure has ended, then put your original disk away in a safe place. Now switch off the machine and wait for 30 seconds before re-booting with the copy. Wait until the CoverDisk17 icon appears, double click on it and away you go.

That's all you need do to make a straight copy of the entire disk. However, you may also want to to copy individual programs from your copy of the coverdisk to a separate disk. In this case ensure that you fully understand which related files need to go with it.

For example, all of the document files on the disk require that the text editor PPmore is in the current disk's C: directory. Therefore, if you copy the docs to a new disk you will also have to copy PPmore to the new C: directory before you can read them.

Some of the smaller docs will not have been crunched, so for these you need only change the tool types on the icon's info screen to reflect whichever text editor you do have on the new disk.

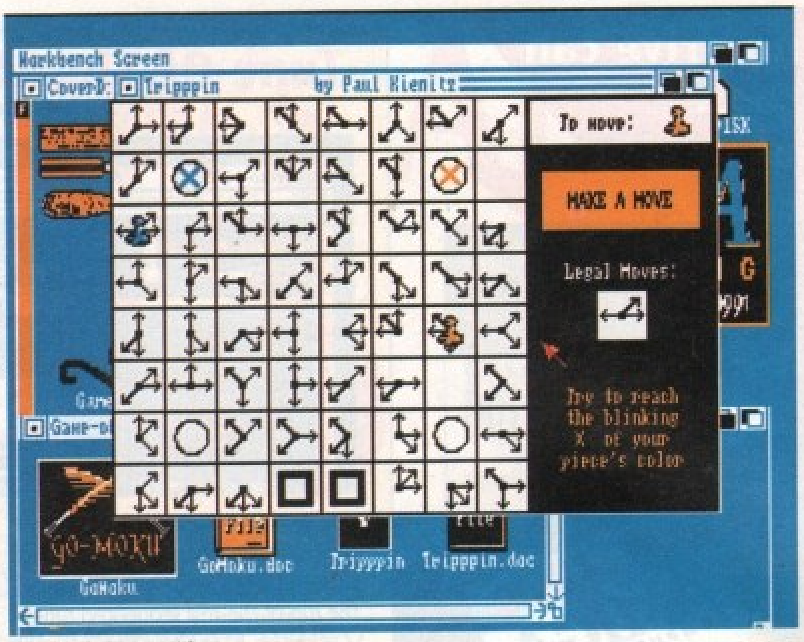
As a general rule, you should carefully read the documentation for any program you copy from disk to disk.

This can save a great deal of messing about and can help you avoid all those infuriating error messages!

the animator can trace the path of the animation from frame to frame, and ensure that the movement is smooth. If it annoys you, it can be turned off by pressing 'G'.

It should be clear from the wealth of available options just how well programmed Andrew's Animation Studio is, and how much thought has gone into its creation. With not a single important feature missing, and several neat extra touches into the bargain, the program never fails to please.

From appealing, well-designed front end to easy-to-use animation tools, Andrew's Animation Studio is a coverdisk classic.



Trippin can be very tricky

Tripppin

Author: Paul Kienitz

Tripppin is another game based around a grid-like board. In this case, the players attempt to move around an eight-by-eight square board, passing each other in the middle, until one of them ends up on the other's starting square.

The cunning thing about this game, and that which gives it its infuriating appeal, is that each square contains a randomly generated pattern of arrows pointing in the directions your *opponent* can move from his or her present square.

This feature means the game becomes a tactical struggle as each player tries to move closer to the objective while at the same time hampering the other's progress as much as possible.

Game options from the pull-down menu allow for one- or two-player games, or for the cumputer to play itself. You can also take back a disastrous move or have the computer suggest the best course of action in the best traditions of "if you can't win – cheat!", and there are nine difficulty levels to choose from.

The game defaults to level three, which is a fair test of skill, and can be made progressively more difficult until one reaches the keyboard-thumping-swearing stage. In my case, this took about ten minutes, but then I've always had a low threshold for humiliation dished out by an impassive silicon swine.

Don't just take my word for this game's ability to make you hate your computer – play it and find out for yourself! Now, where did I put that soldering iron...

InlayMaker

Author: Matt Francis

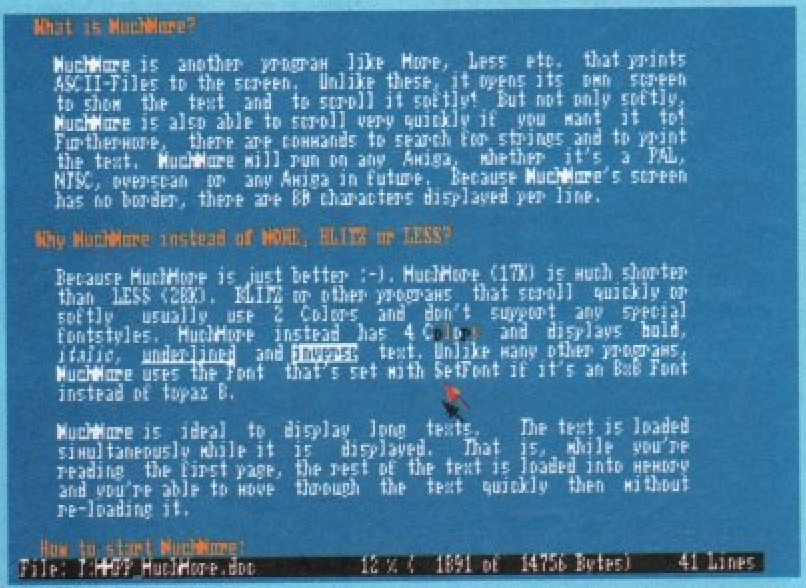
InlayMaker is a utility which prints out cassette box inlays complete with a list of tracks for each side of the tape, and fold lines matching the standard audio cassette box. You will, obviously, require a printer to make use of this facility.

InlayMaker runs from Workbench and will co-exist with other WB programs without fuss. To use it, simply type in the title for Side A and the list of up to twelve songs for that side.

Next, switch to Side B by clicking on the box at the top of the InlayMaker window or selecting it on the pull-down menu, and type in your song list for that side.

Once you are happy with the inlay, you can save it to disk or send it to the printer for a hard copy, providing you have the correct printer driver and related files on your disk as shown in "How to use the disk" (see previous page).

The coverdisk's DEVS:printers directory contains the EpsonX, EpsonXOld, and EpsonQ Workbench printer drivers, so output should be satisfactory on



MuchMore_PP

Author: Fridtjof Siebert

The original MuchMore was designed as a program for displaying and printing ASCII files which would offer smoother scrolling and several more features over other ASCII readers such as MORE (from where it gets its punning name).

As such, MuchMore was quite a success, its sheer smoothness winning it a lot of fans, and it became the standard text displayer on Fred Fish disks.

There remained, however, one serious drawback. MuchMore, in common with most programs, couldn't display text files crunched using the single most popular crunching program, PowerPacker.

For this reason, PPMore became much more widely used on PD and CoverDisks such as ours. Written by Nico François specifically to complement PowerPacker, and distributed with almost every PowerPacker disk, PPMore had little serious competition until now.

MuchMore_PP is identical in all respects to MuchMore, other than its ability to read PowerPacked files, so we have included the documentation for the original program.

At first glance, this is a rather large

MuchMore Command List

Space or left mouse button: Stops or restarts scrolling. Pressing space at the end of the text quits MuchMore.

BackSpace or right mousebutton: Stops or restarts backwards scrolling.

Up/Down or 2/8 on the numeric keypad: Scrolls one line up or down. If you press these keys together with the shift-key you can start and stop fast scrolling. ALT plus these keys scrolls one page up or down.

PgUp/PgDn (numeric keypad): Scroll up or down one page.

F (find): Waits for a string to be entered and searches for this string starting at the topmost line currently displayed on the screen.

T (top) or Home:Moves to top of text.

B (bottom) or End: Moves to bottom of text.

N (next): Searches for the next occurrence of the string entered with `F'. See above.

P (previous): Searches fo the previous occurrence of the string entered with `F'.

G (goto): Opens a Window with an integer-gadget. You can enter the number of the line that is to be displayed.

Shift + Alt + O (printout): Prints the text. Note that once printing has started, there's no facility for stopping it.

W (write): Writes the text that's marked between the text markers that have been set with F1 and F2 to a file or to PRT: when you accept the default filename.

Shift + Fn: Shift plus one of F1 to F10 sets a text marker at the current position.

Fn: Jumps to the text marker #n that's been set with Shift plus Fn.

L (load): Opens the arp-file requester and loads a new text. This command only works if the arp.library is present in the current libs: directory (which it is on your coverdisk).

HELP or H: Shows all MuchMore Commands.

ESC, Q, X or 5 on the numeric keypad: Quit MuchMore.

S (sleep): Closes MuchMore's Screen and waits until left alt plus ESC is pressed to bring up the Arp file requester. It is not possible to send more than one MuchMore to sleep.

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GoMoku

Author: Robert Harvey

GoMoku is a board game, the object of which is to become the first to lay down five stones in a row on a nineteen-by-nineteen square grid.

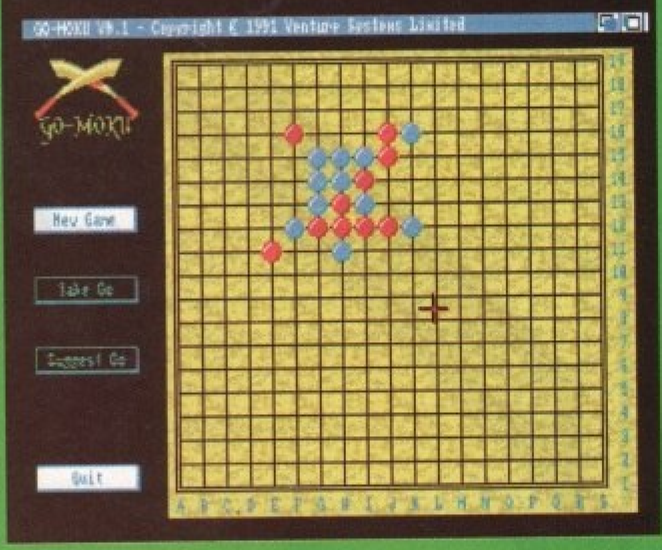
The version on the coverdisk is complete in its own right, but a fuller version complete with Renju rules can be had by registering as a shareware owner with the author at the address in the documents on the disk.

The game is fairly easy to play, gameplay being a matter of simply pointing at the spot where you wish your stone to appear and clicking the mouse button.

The computer then places its stone, and so on until one of you wins. The machine plays a pretty good game and it's a tough opponent to beat, but the facility to have it suggest your next move or take the move for you can be useful if you're driven to cheating.

GoMoku will multi-task quite happily, and although it opens up its own colourful screen, it can be dragged down or pushed to the background using the standard Workbench gadgets.

If you want a game, therefore, it's one of those playthings you can have lurking in the background ready for a spot of light relief.



most common 9- and 24-pin printers. If you have problems with the printed inlay, the fault almost certainly lies with the printer driver or the printer itself.

For example, the program expects to print in condensed type at eight lines per inch using standard Workbench preferences settings. However, InlayMaker will automatically set the preferences itself when printing, so there's no need to mess about with them other than to select the correct printer driver.

Just make sure that your printer is supported by a standard currently selected Workbench printer driver, and that the printer is capable of printing condensed text. The vast majority of printers are capable of condensed printing, so this shouldn't pose too much of a problem.

We printed the inlay shown here using an Epson compatible Panasonic 9-pin printer, but it might just as well have been a Star LC10, Citizen 120D, or one of the other popular models.

If you're heavily into the idea of printing out your own inlays, it might be an idea to get in touch with a local stationery or printing firm. Either of these should be able to supply sticky labels of the correct size for cassette boxes. It would then be a simple matter of printing your inlay directly onto a label.

Bear in mind, however, that InlayMaker's inlays are designed to go on the *inside* of a cassette box, so attaching the sticky label could become a sticky problem!



Inlaymaker in action

file, so in case you feel put off, I'll cover some of MuchMore's most useful functions.

Hard copy made easy

The first thing you might want to do is to print out the documents you are reading with the program, and MuchMore has a function to enable simple printing. To print from the program, however, you must have both TYPE and RUN in the C: directory of your system disk, as MuchMore creates hard copy through the use of the CLI command

```
TYPE <filename> TO PRT:
```

and RUN so that printing takes place in the background.

This means that you can start a document printing, then read it as it prints, or quit out of the program and get on with something else while the printer is busy. We have included the relevant commands on this month's coverdisk, so you should be able to try the printing facility for yourself.

Text Control

MuchMore is very flexible in the way it handles text. Included in its command set are the usual scrolling options (see "MuchMore Command List" for the full list of commands), but in addition you get one or two special extras.

The Find facility, for instance, is a boon to anyone using MuchMore on a long document. By hitting the 'F' key at any point, the user can specify which word or phrase the program should search for, then search forward and backwards using the N(ext) and P(revious) keys.

More advanced, perhaps, is MuchMore's ability to print out whatever small portions of text the user selects. For example, if reading the MED documents, which are extremely long, the user might want to print out a summary of the keyboard commands. Rather than print the entire document, he or she can select where the printer will start and stop by setting text markers using the shift key and F1 to mark the start and shift-F2 to mark the end position.

The pages thus selected can be output either to the PRT: device for printing, or to a file as specified when the W(rite) command is issued. It's a little difficult to tell exactly what text has been selected by this method, as it isn't delimited on screen, but with practice the user should be able to chop pieces of document out with ease.

The G(oto) function is also quite useful as it allows the user to specify exactly what line to go to and saves a lot of scrolling through documents. It's not as handy as the PPMore Goto% command, or a fast-dragging scroll bar, but it does the trick nicely.

You can call the MuchMore commands at any time from within the program using the 'H' key.

Think you can do better? Want to be famous?

We are always on the lookout for new quality Amiga programs for the coverdisk. If you think you have written something good enough for others to share and enjoy, please send it in and we'll have a look.

The Amiga Computing coverdisk is used by thousands of Amiga owners every month in places all over the world from New Zealand to the U.S.A, so if your submission finds its way onto the disk, you could be famous!

Please make sure you list ALL Workbench and other files necessary for the program to work. Feel free to design your own icons for progs which run from Workbench, but please don't make them too big.

If you ensure your program is as compatible as possible with a wide range of Amigas, it will also stand a better chance of publication. We are especially interested in programs designed to work with the A3000, although if they wo[rk] only with the new machine they'll have to b[e] quite small.

We are prepared to pay our current rates f[or] original work which hasn't been distributed i[n] any other way and which has not been put [in] the public domain.

If you wish your program to be released a[s] shareware or freeware we will be happy t[o] publish it, but would, of course, be happier [if] we'd been given it first!

Your submission MUST be accompanied wi[th] the submissions form, a copy of it, or a signe[d] declaration to the same effect. Please supp[ly] your full name address and phone number.

We cannot undertake to return disks sent t[o] us as the volume of submissions makes this a[n] impractical exercise.

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Daytime phone .... Evening Phone ....

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Post your submissions
WITH A COPY OF THIS FORM to:
Stevie Kennedy, Amiga Computing,
CoverDisk Submissions, Europa House,
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Distinctly Digita



Cleverly written and always favourably reviewed in the press, Digita produces a range of powerful, low cost software for the home and business user.

DGCALC

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E-TYPE

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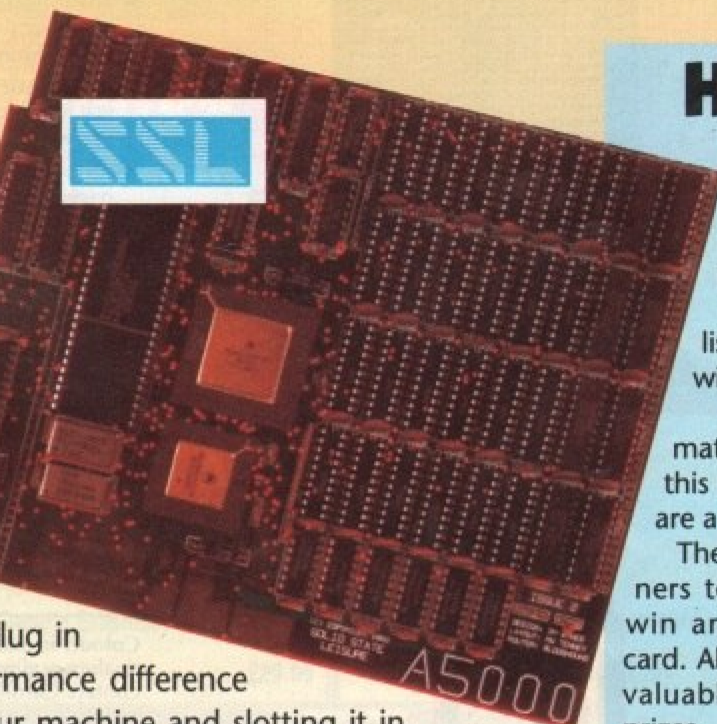
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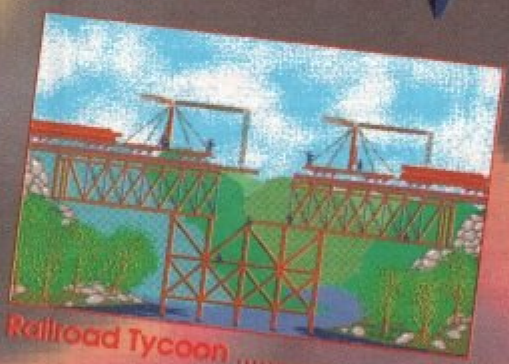


GAME ZONE











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tip SHOP Activate cheat mode by hitting Page 71

PREVIEWS

If you want to know what's hot in the games scene, then this is the page to read. Jason Holborn is the man with the gossip



MEGA LO MANIA – *ImageWorks*

Sensible Software, the brains behind such hits as Ocean's Wizball, 3D Tennis and Microprose Soccer are putting the finishing touches to what they believe to be their most ambitious product to date.

Mega Lo Mania sets you in the role of a space explorer who has stumbled upon a watery, primitive and totally unspoilt planet. Recognizing its potential for development, you set about turning it into a planet which will dominate the surrounding star systems. Unfortunately, you're not alone – three other players have also found the planet, so it's a head to head battle to gain control

SHUTTLE – *Virgin Games*

3... 2... 1... lift-off! We have lift-off of Virgin Games latest epic. To boldly go where no simulation has gone before, Shuttle will put you in the controls of NASA's state of the art Space Shuttle.

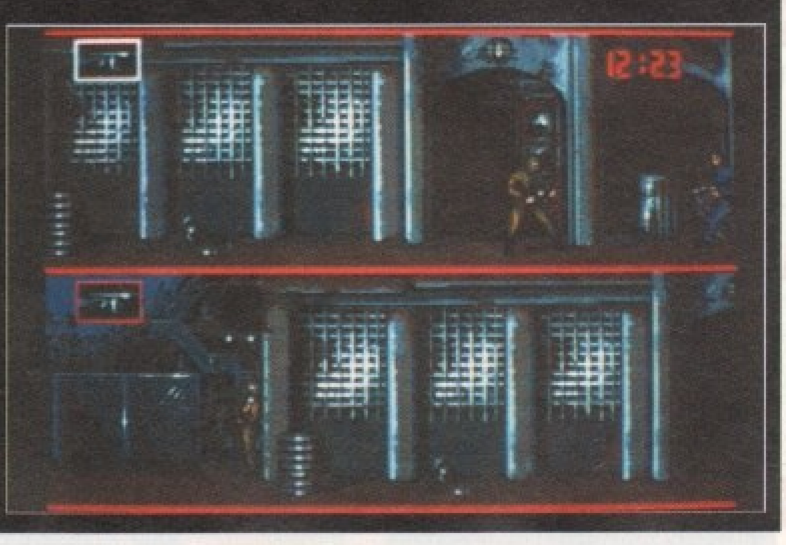
Virgin claim it's the most accurate and comprehensive simulation of the Space Shuttle yet produced for the home computer. You can fly realistic missions including scientific and classified SDI "Star Wars" missions, test flights and satellite recovery. Oh yea, and jokes such as "Where do NASA astronauts go on holiday? Answer – All over Cape Canaveral" will not be appreciated. Look out for it in late '91.

ALCATRAZ – *Infogrames*

Socially aware, that's the only way you can describe Infogrames' latest release. The year's 1993 and San Francisco is at the mercy of Miguel Tardiez, an evil drug baron who will stop at nothing to achieve total domination of the city.

Tardiez has set up camp on the old prison island of Alcatraz, a name which is synonymous with crime. So far nothing has stood in Tardiez' way, but the government have pulled together a crack commando team that must enter the old Alcatraz prison complex, hunt down Tardiez and put an end to his evil ways.

Alcatraz was written by the same team that brought you Infogrames successful "Hostages". It's due out soon the usual price of £24.99.



ROBOZONE – *ImageWorks*

In true Cyberpunk fashion, Robozone is set in a rather bleak and uninviting future where man's total lack of respect for the Earth has left it polluted and uninhabitable. Civilisation has been forced underground until such a time as the Earth becomes fit for humans. To protect the cities, the government have built a formidable force of robot centurions.

The robots were subjected to an increasing number of attacks from angry citizens who felt that they had been abandoned by the government they had installed in power. But one day, out of nowhere a new threat appeared – the pollutants. These robotic mutants swept in, destroying all but one robot centurion.

In this sideways scrolling shoot-'em-up, you play the role of the last Wolverine robot centurion. You must fight your way through legions of pollutants until you finally reach the city furnace which they have made their HQ.



ALIEN BREED – *Team-17*

With their first major release behind them (Full Contact), the seventeen bit boys are putting the finishing touches to Alien Breed, a game which continues their tradition of pushing the Amiga's graphics and sound capabilities to its limits.

On a full PAL-resolution screen, the game looks like a cross between Alien Syndrome and Paradroid. With high power weapons to collect and a healthy collection of alien beasties to wipe out, this one looks all set to be a real stunner. Even more stunning is the price – just £9.95! Expect a full review soon.

ROLLING RONNY – *Virgin Games*

If you thought a job in the city was all about wine bars, cell phones and Porsches, then you should have a go at poor old Rolling Ronny's job. Ronny is an errand boy who must roller skate his way through nine levels of parkland, city streets, office complexes and even underground sewers.

Ronny must collect enough cash running errands for the inhabitants of this weird and wonderful town to earn money for a bus ticket to the next part of the game. The game features screens with more than 100 colours, wacky powerups and some of the smoothest animation you're likely to find.

Classic RPG finally hits the Amiga

MEGATRAVELLER 1
The Zhodani Conspiracy

Publisher: **Empire Software** Price: **£00.00**

The world's most popular and longest-running science fiction role playing game (RPG) has at last crossed the silicon divide, and it was well worth the wait. MegaTraveller is undoubtedly the best ever computer RPG and has added a whole new dimension to what was an otherwise badly flagging genre.

The game achieves a commendable balance of playability and depth, such that although players of the original paper-and-pencil game will immediately feel at home with its faithfulness to the spirit of Traveller, players unfamiliar with RPGs will find MT1 easy and rewarding to play.

The first step in any RPG is character generation, and it's this dice-throwing hell which so often detracts from the instant playability of computer RPG's. In MT1, however, the process is quick and painless.

Players are given a set of physical and mental attributes which they can accept or 're-roll' as they please. Once a suitable set of figures is reached, the bare character is enlisted in the Marines, Navy, Army, Scouts, or Merchants to serve a four year term.

If the character survives the term without injury or death, a number of skills are awarded according to whether the character was promoted or served on special duty, and the player chooses which list of skills to roll on for the particular skill.

The skills available depend on which service the character enlisted in, so individual characters can be generated quite easily. After the initial term, a character can re-enlist in order to obtain more skills until death, old age, or retirement forces him or her to quit. The player therefore has to balance the advantages of extra experience against the physical effects of aging.

Character generation is one area in which Empire have stayed very close to the original rules, allowing full characters to be developed, but the whole process for a party of five can still be over in ten minutes or less, allowing the player to concentrate on playing the game itself.

The action opens in typical fashion. The group is approached in a dingy spaceport bar by a woman identifying herself as an agent of one of the powerful megacorporations. She has uncovered a plot led by Konrad Kiefer to destabilise the Imperium, of which the player is a citizen, and allow the rival Zhodani Consulate to overrun and conquer it.

To thwart the traitor Kiefer, the group must raise the two million credits necessary to equip their starship, the

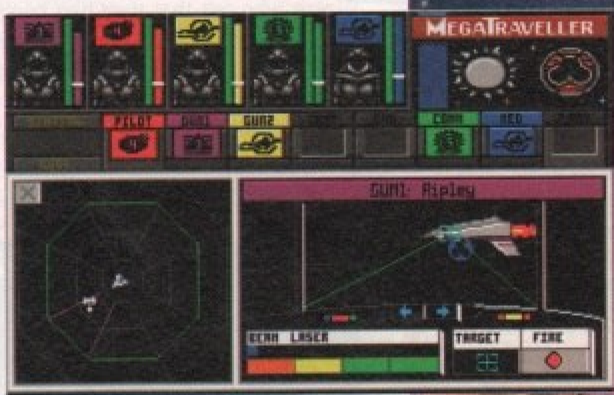


Talk to as many people as possible – they might reward you!

Interloper, with a Jump Drive capable of reaching the Boughene system, where another agent is awaiting the vital information entrusted to them. The marvellous thing about MT1 is that the way in which a player raises the cash is entirely his or her own decision.

Unlike other games, whose gameplay consists in the player discovering the correct solution, MT1 allows the player the freedom to do anything he or she wishes in pursuit of the objective. If you have a group with extremely good combat skills, for instance, you might try to fight your way to riches, killing and robbing everyone you meet. You might decide to hunt down the ten or so dangerous criminals for the extravagant bounty on their heads, or hoist the Jolly Roger and prey on defenceless space traders.

If, on the other hand, your group has good vice or interpersonal skills, you could try your hand at smuggling



Space combat can be a rewarding or instantaneously fatal business







and forgery, or gamble your vacc suit away in the casinos.

You can even, if you have high trader skills, attempt to ply the interstellar shipping lanes for profit, just as in the classic trade-em-up Elite, which incidentally was inspired by the original Traveller RPG. Just about anything is possible, and when you discover that many of the individuals you meet will pay highly for particular items or for the return of, for example, a stolen family heirloom, a wealth of sub-plots opens up before the delighted player the like of which you will find in no other computer RPG.

During my first session of play, I found myself looking for a man who would buy a bronze sculpture from me at a decent price, and ended up knee deep in the swamps shooting alien lizards because their hides fetched 800 credits in the local bar.

I only later realized that it cost more in ammunition to kill the tough beasts than I could recoup for their skins, so I gave up in disgust and robbed a few rooms in the local Starfarer's Rest (a sort of omnipresent galactic Holiday Inn) to make up my losses. In the act of burglary, I happened across a bag of emeralds, which if my memory served me right would fetch a high price on the planet Efate. I had, unfortunately, just left that planet in alarm at the number of assassins who seemed intent on collecting the contract put out on the group by Kiefer and Co.

The group was in a rather embarrassing cash flow situation, however, so was I forced to run the risk of a bullet in the back to seek out the emerald dealer.

I located the fellow in the museum on Efate, only to discover I had the wrong man, though he did offer to pay handsomely for any diamonds I found. I consoled myself with the fact that we received some interesting information on steel prices in the Menorb system, but I feel Mitzy, our only casualty before we managed to evade the assassins, would have rather we'd stayed in the swamps...

Get the picture? This game is huge, and the universe through which the group adventures is extensive enough to keep you going for months. When you think that Paragon Software, who actually coded the game, are hard at work on MT2, it's not hard to see MegaTraveller setting entirely new standards for computer RPGs.

Gameplay is intensely friendly. Everything can be accomplished with nothing more than the mouse – there's no need to type or use control keys. You move the group in real time by pointing to where you'd like it to go on the scrolling overhead map and holding down the button to keep them moving.

Once combat is initiated, the group is broken up into its five individual members, who can then be given their own orders on what to do, where to go, and who to shoot at, which they'll continue to do until the fighting ends or they are otherwise instructed.

Interaction with other characters is simply and effectively carried out with the aid of a choice of options on whether to buy, sell, talk, bribe, and so on, and is more or less at the right level of complexity. The personality of such computer-controlled characters is necessarily shallow because of the restrictions of the medium, but MT1 still manages it better than most.

All I can say is that if you've ever played and enjoyed RPGs on paper or silicon, buy this game immediately – it's too good to miss. If you've never managed to get into games like this on your Amiga because they have previously been rather dull in their presentation and strait-jacketed in the way they play, MegaTraveller 1 could be the game that changes your mind. Either way, you'd be mad not to give it a try. If it doesn't rank as the best RPG/adventure game of the year, I'm a Zhodani's uncle.

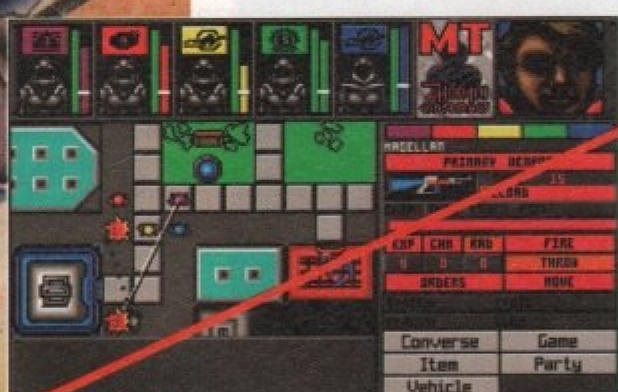
Sandra Foley



You can rent vehicles on some planets to aid in your exploration



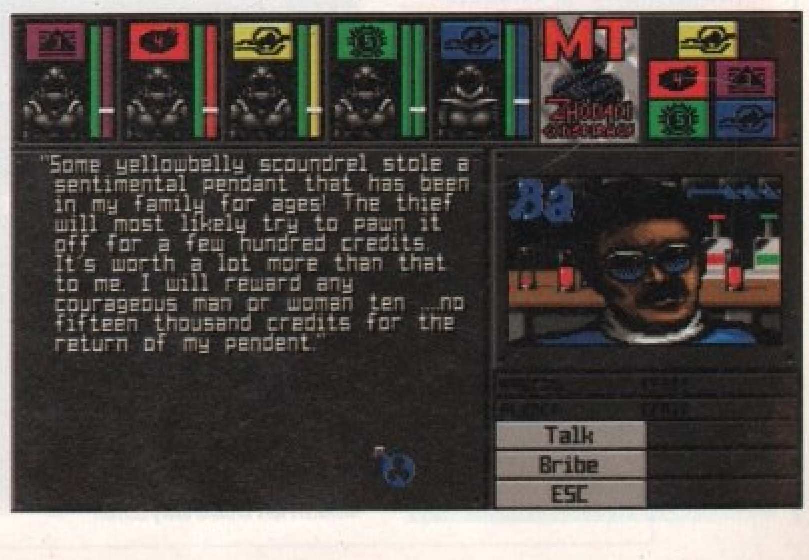
If you disable another ship, you can plunder its cargo

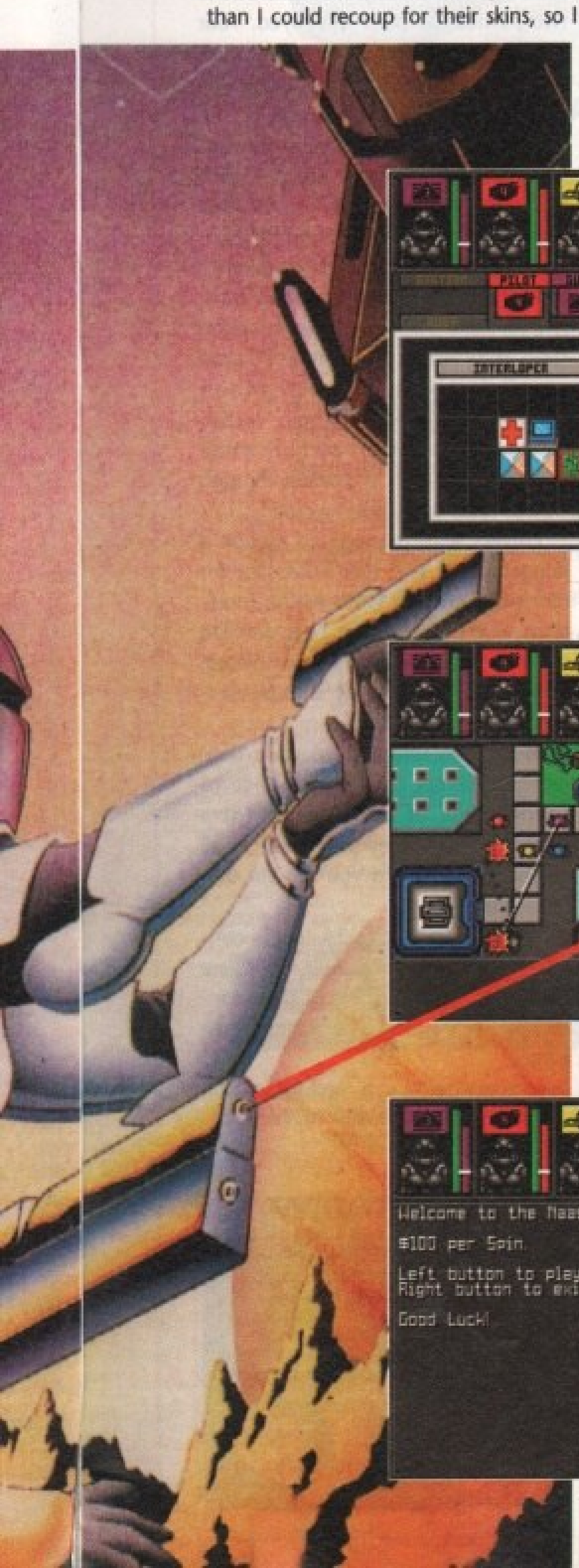


Combat on the the ground can be simple but deadly



Gambling is one route to riches





Graphics

Absolutely spot-on. Big, colourful, and easy on the eye, MegaTraveller's graphics are better than those of any previous computer RPG.

Sound

Spot effects add to the game during combat and so on, but there's not much call for it in this sort of game.

Gameplay

Brilliantly balanced between complexity and playability, MT1's gameplay is a miracle in that it actually feels like an RPG. A triumph of intelligent game design.



A computerised classic

HERO QUEST

Publisher: Gremlin Graphics   Price: £24.99

The fell legions of Morcar, Lord of Chaos, had swept all before them. At the sight of the Black Banner and the massed hordes of Chaos, even the bravest warriors of the Emperor had turned tail and fled, the land was laid waste and all men despaired." So it was that the Chronicles of Loretome told of the age of darkness – a time that was destined to last until eternity.

However, under the leadership of Rogar, a Barbarian prince from the Borderlands, a party of would-be heroes was assembled. In addition to the Barbarian, the group also included a battle-hardened Gully-Dwarf, an Elven cleric-fighter and a mystical Wizard. Could these four companions enter Morcar's domain and put paid to his evil schemes?

Gremlin's Hero Quest is taken directly from the MB board game of the same name. The game can be played by up to four participants, the computer assuming the role of the evil Morcar. The basic game involves a party of heroes attempting to complete 4 quests. Each task involves one or more of the following: finding an escape route, rescuing a hostage, collecting an ancient artifact or defeating an evil monster. Before commencing a quest, the players will be informed of their goal.



Set you characters up here

Each of the four players have their turns before the computer decides which of Morcar's minions to move. At the beginning of a turn a gold coin spins in the corner of the screen. When stopped, the coin will indicate the number of moves a player has.

During a turn players may perform a number of actions. Walking around the dungeons is pretty straightforward. In addition, participants may also search for hidden treasure or secret passages.

Monsters patrol all levels of Morcar's dungeons and come in all shapes and sizes. When a creature is encountered will usually advance and attack (would-be heroes can attack first). The battle is portrayed with your character facing the attacker. Skirmishes are decided on the role of a dice. The attacker must roll skulls to achieve a hit on the enemy while the defender rolls shields to block the blows. The battle continues with the roles alternating until one of the two parties has been destroyed. Your hit points are displayed in the top left corner of the screen. Your character will die should this value reach zero.

All of the heroes can use conventional weapons. Ranged weapons, such as crossbows, may also be used as long a monster is within view. In addition, both the Sorcerer and Elven Cleric-fighter can use magic, casting both offensive and defensive spells. Attacking spells allow you to kill monsters you can see. Defensive spells allow you to increase your armour strength, revitalize your hit points or perform other useful actions such as passing through walls.

Players who manage to escape a dungeon may save their characters for future quests. Only when all the conditions of the quest have been fulfilled will that quest be deemed completed. To become a real hero you must complete all fourteen quests.

In between searching Morcar's dungeons, players have the chance to spend some of their spoils. Extra weapons, armour and provisions can all be purchased to aid you in your ultimate goal.

In addition to the 14 levels contained within Hero Quest, Gremlin are also going to produce data disks containing even more spine-chilling challenges.

Nick Clarkson

Graphics

Gremlin have successfully re-created the original feeling of the board game. The graphics are well defined and colour has been used to good effect. Fans of the original game will feel right at home with this computer version.



Shops allow you to spend your ill-gotten gains



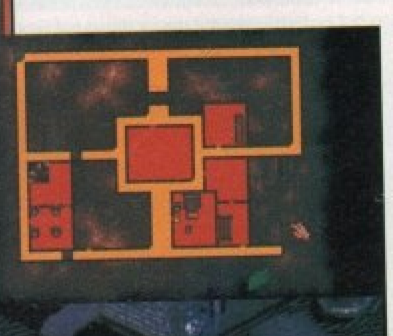
With 14 different missions, you're going to be busy

Gameplay

Hero Quest is not a fast-moving action game. Fans of the board game will enjoy this computerised incarnation. Newcomers to the game will rise to the challenge and everyone will appreciate the easy-to-use icon system. The computer version doesn't include the same maps as found in the board game. Therefore, all would-be heroes will be able to compete at the same level. With some 14 levels in all, Hero Quest represents great value for money.



Magic games in four different sets



Maps show all relevant dungeon data



Monsters lurk around every corner!

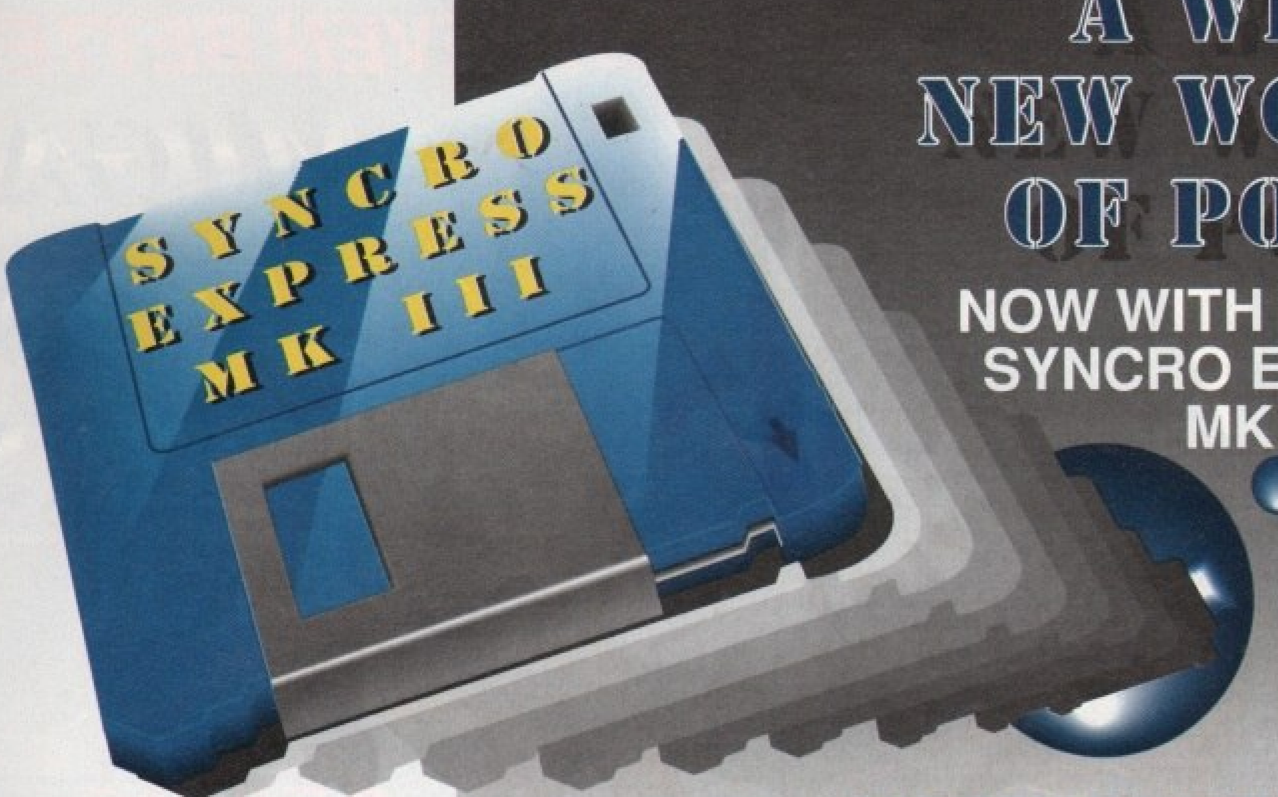
Sound

The strong title tune provides the perfect setting for Hero Quest. The in-game sound effects are pretty sparse, but the samples used are clear and instantly recognisable.

FINAL JUDGEMENT

90

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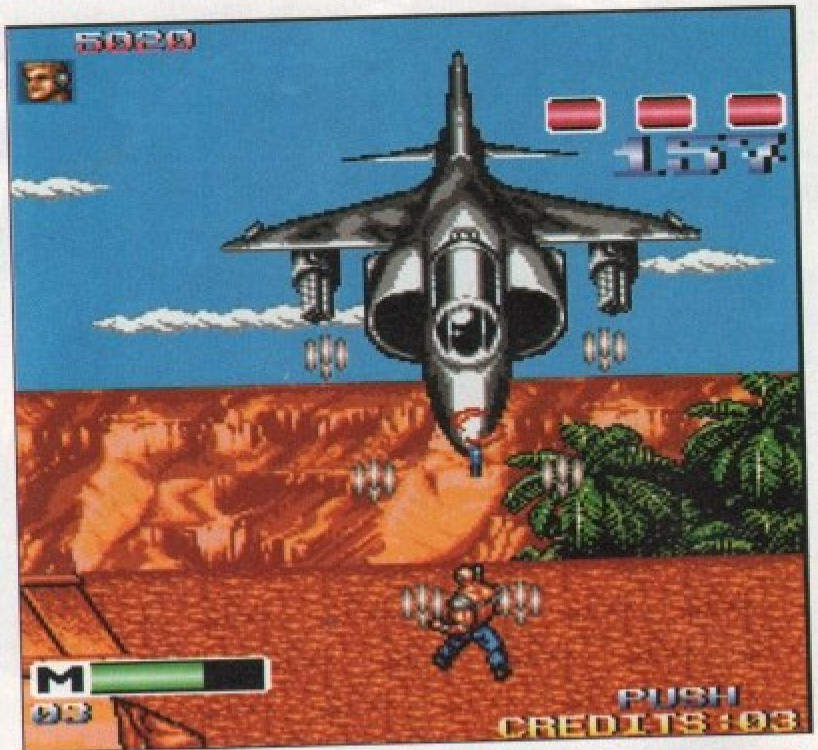
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Silicon soldiers fo fortune!

MERCS

Publisher: **US Gold** Price: **£24.99**

Hands up who remembers Commando? In its hayday it was both a hit in the arcades of England and on the home computer formats across which it was released. Some heroic soldier, drafted at great expense from the streets and given a gun and grenades all of his very own, had to single-handedly take on several enemy outposts and, put delicately, blow the living daylights out of them.

That was many moons ago, before the times of 16-bit games playing, before the Amiga even had such gems as Space Invaders developed for it. However, the old ideas are sometimes the best. At least, US Gold reckons so, because MERCS feels pretty damn familiar to me.

Times being what they are and governments spending so much more on defence these days, MERCS allows the prospective Sylvester Stallone to take his buddy along with him to help out. Thus the game may be played with two players simultaneously using two joysticks (much like the Commando sequel, Ikari Warriors). So grab a joystick and get stuck in.

Whether you go it alone or with a chum the idea is the same. Shoot absolutely everything that moves. Should it not move, lob a couple of grenades at it first until it does, then shoot it some more. You're beginning to get the subtle message now, aren't you? But before you mentally dog-tag MERCS as a predictable run-of-the-mill shoot-em-up, it's best that you know what else it has to offer apart from the two player mode.

The first has been done before but it's nice to see it here - along the tortuous route to the end of each encampment you'll come across various military vehicles. Jeeps, small armoured cars, maybe even the odd tank. Leap into one and not only is your firepower increased but you may also progress faster.

Don't think that these gifts are the end of your troubles though. No way. Like most of the scenery and landscape, the vehicles may be destroyed. In fact, if you're careless, you may even destroy them before using them. Chances are that before too long the vehicle will be blown up with you inside it, and it's back to boot leather transportation again. I mentioned that much of the scenery can be destroyed. In fact, much of it HAS to be destroyed or you won't be able to progress through the levels.

Groves of palm trees, army barracks crawling with soldiers, burnt-out snipers' haunts – all come between you and the guardians. Oh, didn't I mention them? They guard the gateway between levels. No huge robotic monsters or silly dinosaurs, these babies are for real. Planes that strafe you with deadly accuracy, tanks to blow your butt off. All hits deplete your limited energy. There are plenty of action-packed levels to test your stamina as well as the omnipotent Guardians. Win through and you deserve to be a General.

Ashley Cotter-Cairns

Graphics

If you have time, take in some of the nice smooth scrolling and admire the colourful sprites.

Sound

The usual compliment of explosions and destructive white noise offers nothing new but don't disappoint.

Gameplay

MERCS is nothing new. Nor is it a particularly adventurous rehash. But it's playable and certainly entertaining for a while.

FINAL JUDGEMENT

70%



Caption needed



Two player action is more fun



A typical end-of-level nasty



Cornered!



EEK! Things can get hot very quickly in this game

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The Bitmap Brothers, have become synonymous with excellence. Their impressive list of games reads something like a hall of fame: Xenon, Speedball, Xenon II, Cadaver, Speedball 2 – every one a number one! Now comes Gods, a platform game with a difference.

The game is based on happenings in Greek mythology. As the hero of the game it is your task to complete a series of levels, defeating all-manner of blood-thirsty beasts as you go. All of the game takes place within a city created by the great gods as entertainment. The beings from Mount Olympus lay down the challenge suggesting no mortal man could survive the traps and terrors of the city.

Many men had attempted to get to the other side of the construction, none had succeeded. Now you, a fresh young warrior, have risen to the challenge. If you fail a slow and painful death awaits, if you succeed you'll be granted one wish from the gods.

Your heart's desire is to be an immortal yourself. Your character looks suspiciously like that of Greek strongman, Hercules. Whether or not this is the case isn't totally clear as you seem to wear an ornate helmet throughout the action.

The point of the game isn't to simply battle your way to the end of each level before taking on a formidable-looking enemy. Indeed, Gods also includes a range of taxing puzzles which must be solved.

The game utilizes a fair degree of artificial intelligence. For instance, one of the first puzzles sees you collecting a stone pot. The game's message bar will inform you that you have to deposit said item in a store room. Many players will find this task relatively simple, however novices may need a little help and the game will aid slow learners with extra hints. Not only will the game give hints, it will also introduce more intelligent monsters to challenge skilled players. In addition to helping the less able, the game will also reward obvious talent. If you manage to reach the end of the first stage within a certain time limit, you'll be rewarded with an extra goodie.

It's split into three definite worlds, each one providing progressively more of a challenge. Indeed, the first section of the game eases the player into the action, teaching him various strategies.

Those Bitmaps do it again!

GODS

Publisher: **Renegade** Price: **£25.53**



The labyrinth of tunnels and walkways which make up the GODS lair is a deadly place – enter at your peril



Thieves can bring stuff from normally inaccessible areas



Teleport rooms provide extra bonuses and allow you to access new areas

Graphics

The visual presentation is up to the usual Bitmap Brothers standard. Highly polished, the variation is great. Colour has been used to good effect and the all-round feel is one of general excellence.

Sound

Nation 12, the same guys responsible for the cracking sound on Speedball 2, have done it again – the in-game Gods music is stunning! The sound effects are also of arcade quality – the various samples come across really clearly.

Gameplay

The artificial intelligence found within the game makes it a challenge to players of all abilities. The joystick controls do prove to be just a little unresponsive at first. However, once conquered the overall gameplay is brilliant.



The end of each particular level sees you coming face to face with a particularly mean nastie. These large end-of-level guardians can prove to be a real challenge. Should you manage to defeat a guardian and thus complete a level, you'll be given a password allowing you to start at that particular point next time you play.

As you progress through the game you'll encounter various monsters and traps. The former beings can be despatched in the time-honoured tradition while the latter may need more devious thought.

Killing creatures will yield precious gems that boost your wealth. Other items such as keys, power-ups and new weapons can also be collected and used. Throughout the action you'll no doubt encounter a shop keeper. Like the galactic salesmen found in Xenon 2, these fellows carry an impressive arsenal. Providing you have enough cash you can buy all sorts of deadly goodies. These range from simple extra lives and energy restoratives, to homing fireballs and spears. Perhaps the most deadly weapon is your familiar. Assuming the shape of an eagle, this beast flies around the screen taking out many of the maurading meanies.

All in all Gods is another first-rate Bitmap Brothers game. All the symptoms are there, the great sound, brilliant graphics and outstanding gameplay.

Nick Clarkson



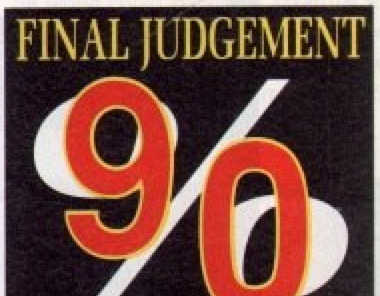
Secret levers and buttons are everywhere, hit them to open new sections



Extra lives, energy and weapons can all be found in the shopkeeper's store



Goodies galore – treasure rooms supply well-earned bonus points



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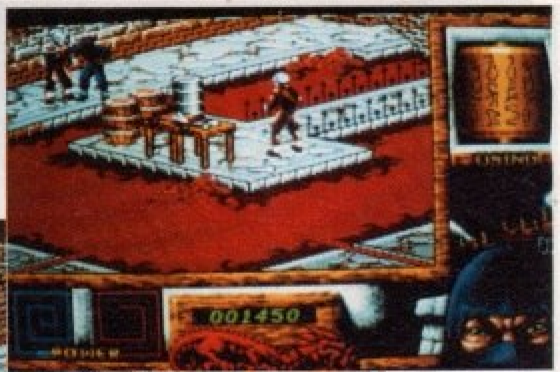
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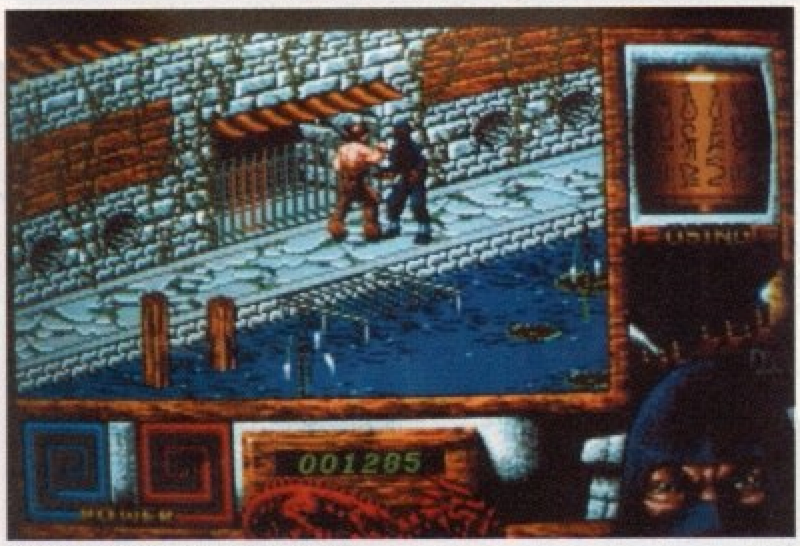
More beat-'em-up action in the on-going Ninja saga

Ashley Cotter-Cairns takes a sneak preview of two of the latest offerings from System 3

Real hatred is timeless

LAST NINJA III

Publisher: **System 3**



This town ain't big enough for the two of us

Don't be misled by the title. System 3's thinking here is not that everyone hated the first two Last Ninja games, so why shouldn't they release another? In fact, the hatred refers to the Ninja hero in the title, who has vanquished the great evils posed by Last Ninjas I and II. This terrible hatred is targetted at Kunitoki.

With a name like that you wouldn't expect him to be the President of the United States, and you might not be surprised to hear that he is in fact an Oriental Demon with magical powers at his disposal and a portfolio of evil deeds that makes Jack the Ripper look like Postman Pat.

Having tracked Kunitoki to the temples of Buddists in Tibet, you're not going to waste time taking in the local scenery or whiling away the hours by climbing the odd mountain or two. No, you're going to have to get stuck in in the only way you know – using boot, fist and traditional pointy weapons as well as blowing things up with bombs and solving puzzles.

Doubtless Kunitoki has many surprises in store – with a persistence that spans several years and three games, the Last Ninja ain't gonna have the back door left open for him.

Now we come to the end of the game, and it's almost taken as read that you're going to have to face Kunitoki in his lair and defeat him (again). Whether, like JR in Dallas, he'll escape miraculously once more to fight another day remains to be seen, but one thing is certain – as surely as System 3 has improved Last Ninja III from the first two and as surely as shuriken will stick in a tree, System 3 isn't telling anyone...



Mythical action in soft focus



Adds new meaning to greenie blaster

Legend or...

MYTH

Publisher: **System 3**

What a holiday! The chance of a lifetime. An all-expenses paid trip to Greece, Norway and Egypt. All you need is yourself, your wits and a sword. A sword? Yup, 'cos this ain't no 18-30 sun, sand, sea and socks holiday, no siree. You've got to earn your ticket home – through time, I hasten to add, via many a nightmare – by sending many things better left undisturbed back to their graves and skidaddle quick smart.

What's been disturbing the dead and bringing them around from their Sleep of Ages? Well, the evil Gods of the exotic countries and religions you're off to meet have cooked up a plan. Discovering this plan is half of the fun, but you can rest assured that the universe is at stake should you fail. Heavy stuff, ain't it. And don't think that waving a hopeful sprigg of garlic or holding a crucifix up at the monsters is going to be effective, because that movie stuff is for daydreamers.

To win through THIS little scrape you're going to have to kick those monsters right in the bottom with some very pointy shoes.

Swords are all very well when you're dealing with the lesser minions. Skeletons don't walk so good without legs, even if they are already dead. But come face to face with a Demon lobbing deadly accurate magic missiles at you and wanting nothing more than a cooked adventurer for lunch and you're going to have to come up with something a little more potent.

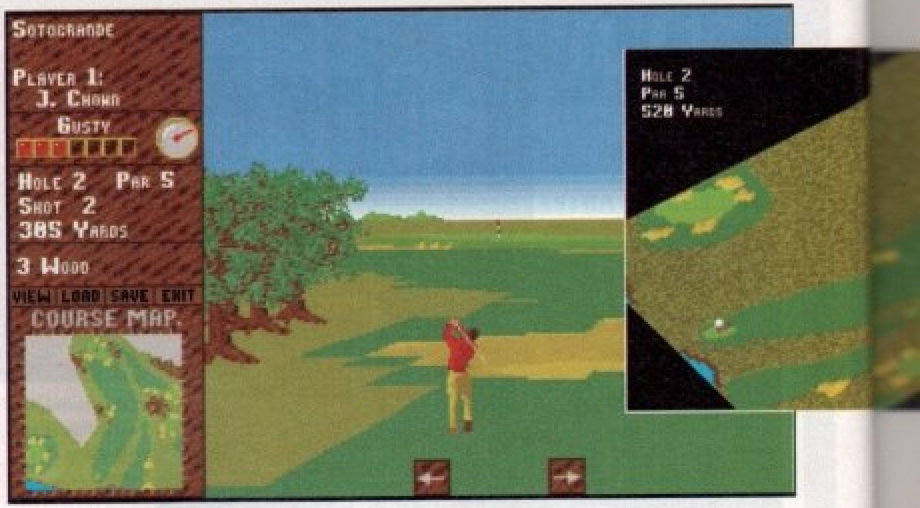
Luckily, help is at hand, as magic of your own must be collected and put to good use. Even the nastiest of Demons will think twice of picking on, say, a seven stone weakling that can throw hurtful fireballs. Myth certainly went down well with 8-bit bods, and if these screens are anything to go by the 16-bit world could be just as taken by it. The game was never the easiest in the world to complete and should provide a lasting challenge for bored explorers and heroes everywhere.

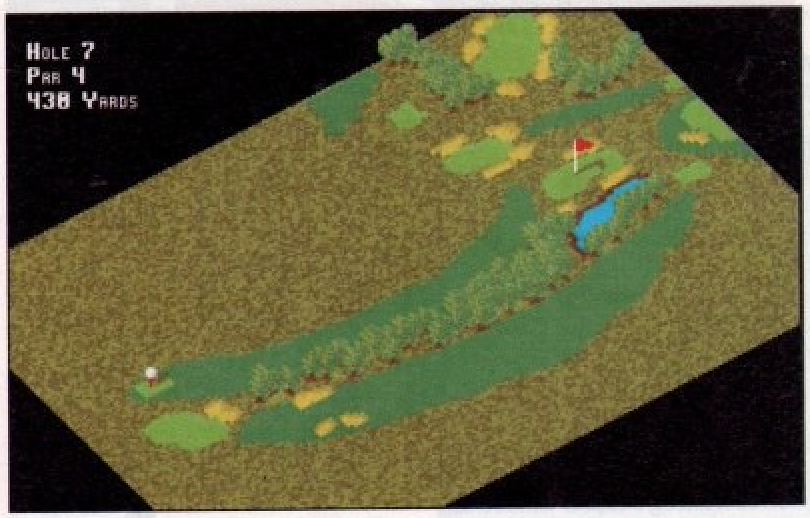
Availability

Both games are due out now, and should set you back £25.99 each – but be sure to check our full reviews in a later issue before parting with those hard-earned.



After choosing your course, you can check the pars and distances of the various holes





Faldo tees off. It's a nice drive, straight up the fairway. Pity about the crosswind: it's blown him a little to the right, veering towards the light rough at the fairway's edge.

No problem for a pro though. I tee off to follow the master and it looks equally promising. Then my slice kicks in and I end up in a bunker on the second hole to the right. In computer golf, you can make the graphics more clearly defined, more colourful or more convincing.

You can add sound that stretches the imagination until the player can close his eyes and be on the course. You can add wind and weather, effects of slope and gradient, length of grass and angle of club face until the ball reacts just like it would on the course.

Taking this all a step further, you could take a camera out for digitising graphics and a microphone out for sampled sound. But in the end there's one part of golf that no game has managed to capture to date. No matter how long a golf game is in development, no matter who the company pay for the privilege of printing their face and name on the box and no matter how wonderful the audio and visual effects are, the missing element is skill.

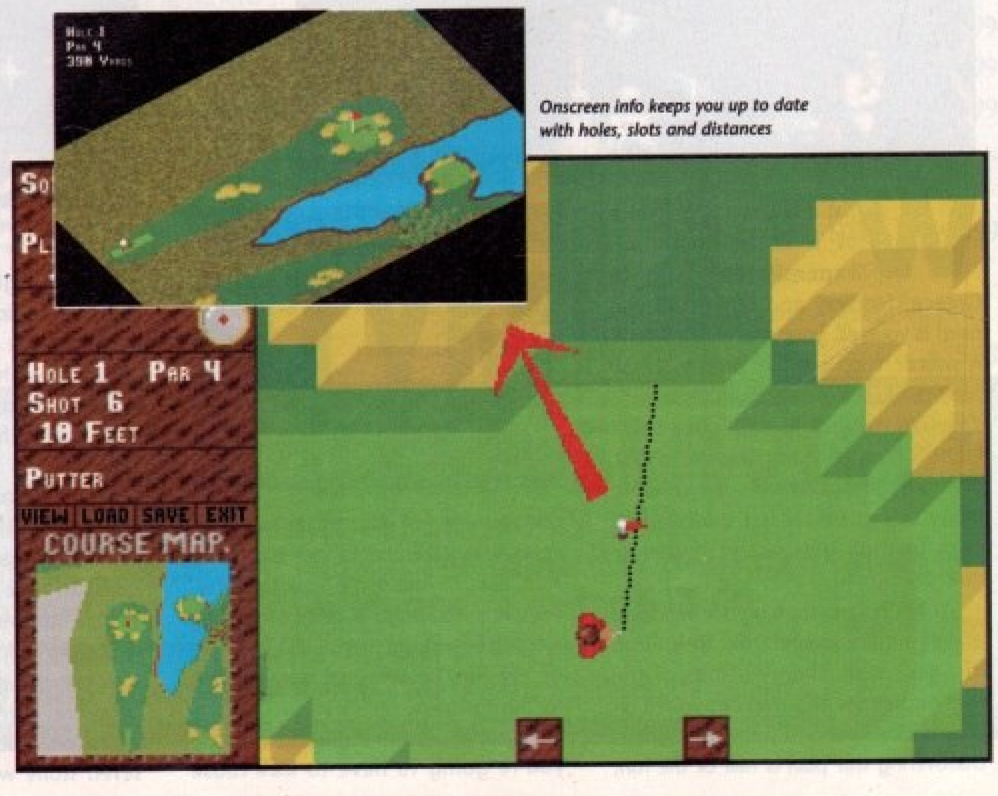
Straight down the middle...

CHALLENGE GOLF

Publisher: **XXXXXXXXX** Price: **£00.00**



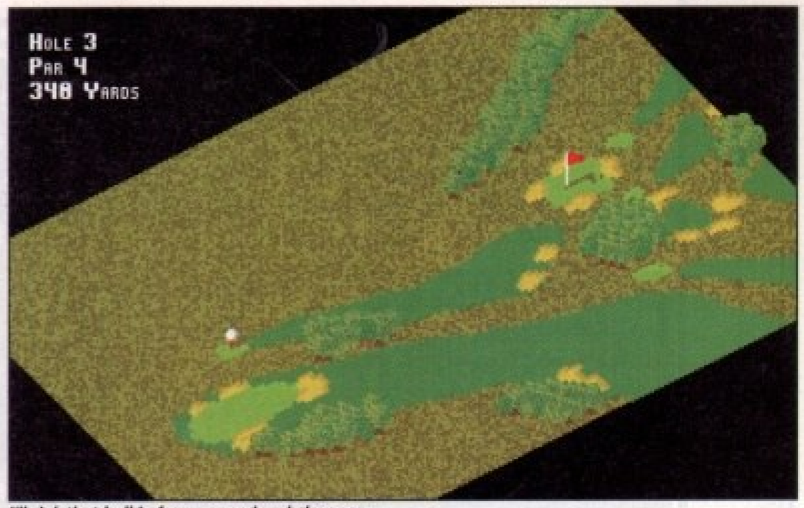




Onscreen info keeps you up to date with holes, slots and distances



Click on the power bar when it shows the level of power required for the shot



I'll sink that ball in four... or end up below par

With computer golf, you pick up the joystick or mouse, go out onto the graphically superb course with the miracle grass that's always the right length, and play out of your skin every time.

Within a degree or two, you're always aiming in the right place, you're always hitting the ball, it always travels as far as you thought it should and (at the press of a button) you can check on just how far that will be according to your selected club. You always know how far the hole is from you too.

Challenge Golf is without a doubt one of the best golf games yet to grace the Amiga. You may tee off with one to four players at any one of three skill levels. The skill levels affect the power of the wind only, so budding Faldos get veritable tornados. Be honest and the worst you'll get is a slight breeze. You can play with mouse or joystick: I found the mouse to be the better option.As with all computer golf games, there is a pause between holes while the data for the new hole is loaded in and processed. Before each hole begins you are treated to an overhead view of its map in excellent colourful and detailed graphics.

Then there is a pause – something in the region of twenty seconds – while the view from the tee is processed and drawn. This is annoying to say the least. Thankfully the pause between shots is not nearly so long. It's mostly standard stuff. You get the view of the hole, dominating the screen, and boxes for the various options. A large red arrow demonstrates the direction of aim for the current shot. The computer selects a club (often a dodgy selection which you could probably better) and this is displayed at top centre of the screen.

You can re-select using the option box at the left of the screen. This calls up another box showing which club you've selected and how far its range is. When you're happy with the line of aim and your club selection (having taken the wind into consideration) you can begin your shot.

Press fire or click on the golfer. A power bar appears and a line begins to run up it. Click on the bar when you have the level of power required for the shot. There's a red zone at the end of the bar which represents an overpowered shot. If you leave your power selection too late and it falls in the red zone, your margin for error is greatly reduced.

Once the power has been set, you must control the snap of the shot. This determines whether the shot (unaffected by wind) will travel straight, hook left or slice right. This is done by stopping the bar as it travels towards the snap zone, represented by brackets on the snap bar.

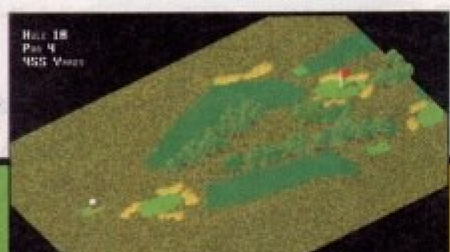
This zone is your margin of error; it's wider for high clubs like a nine iron and lower for drivers. It's also narrowed by an overpowered shot. The shot, once completed, winds its merry way off into the green pastures. Once you've landed in yet another set of bushes you are treated to an action replay on the overhead map. This is nice for a couple of shots but then becomes annoying. An option to turn it off should have been included. Putting is a matter of setting the direction of the putt and the power: this is viewed from above and takes a little practice to master.

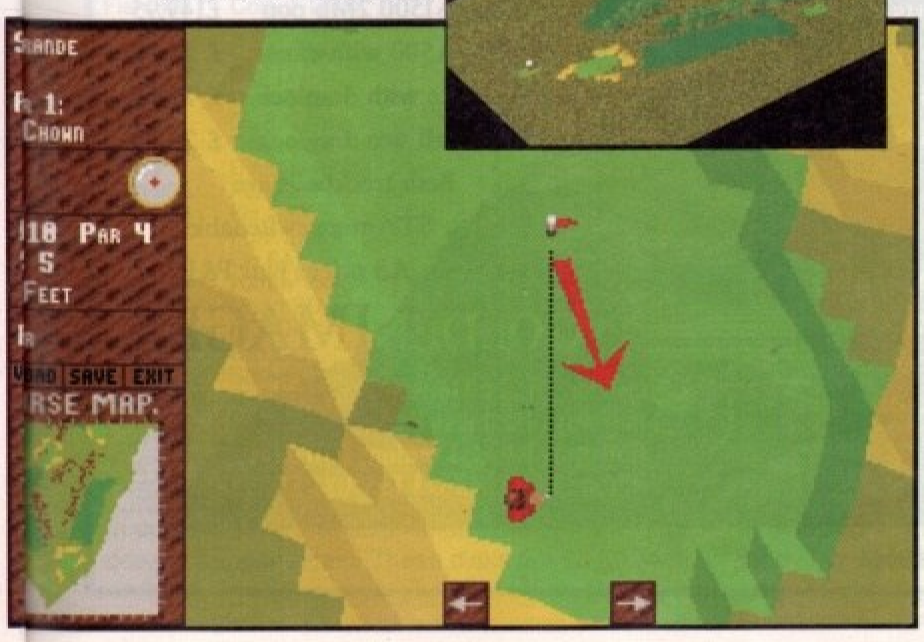
Ashley Cotter-Cairns



The putter comes into play

A large red arrow shows the direction of aim for the current shot





FINAL JUDGEMENT

8/10

Graphics

I can't fault the game's graphics. They really leave little to be desired.

Sound

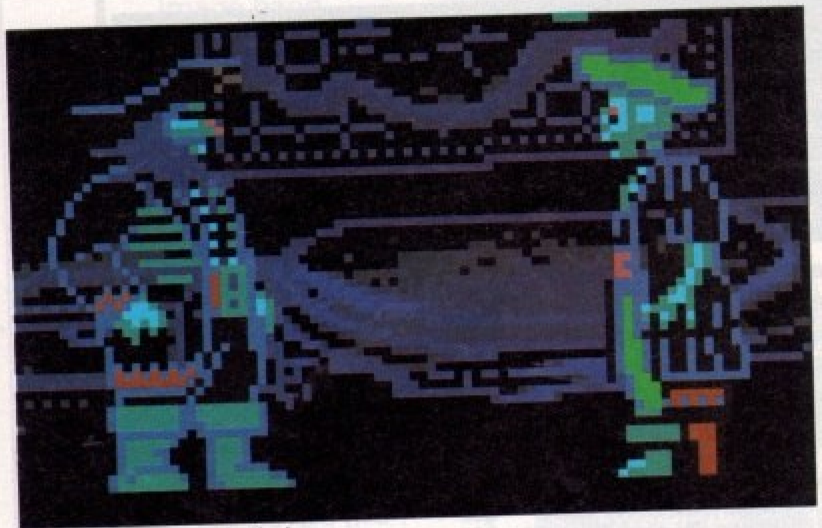
Sound is also good, with neat sampled sounds for swing, the ball falling into the hole, hitting objects and the "ooh" from the crowd when a putt misses by inches.

Gameplay

I found the game to be too inconsistent. For example, when hitting objects the ball often flew off at crazy angles and seemed to travel a long distance. Still, for the odd round or two with friends, Challenge Golf is a game that I would recommend heartily. Its few shortcomings are more than compensated for in terms of graphics quality and general playability.

Lucasfilm Games have had a string of hits with their excellent range of adventures. Thousands have chortled at titles such as Manic Mansion and Zak McKraken and the Alien Mindbenders while others have gasped at the nail-biting action of Indiana Jones and the Last Crusade. Whatever your tastes, Lucasfilm Games' adventures are easy to play and fun for everyone.

Piracy and high adventure on the Spanish Main are a natural subject for a game. What better software publishers than Lucasfilm Games to bring such an epic to life? The Secret of Monkey Island was designed and created by Ron Gilbert using the third generation of Lucasfilm Games' adventure system.


The fearsome Ghost Pirate Le Chuck


Monkey Island has some very odd inhabitants

You must assume the role of the bright-eyed youngster, Guybrush Threepwood. As an inhabitant of Melee Island Guybrush desperately wants to become a part of the local industry – piracy! However, something is terribly wrong with the local pirates. Instead of splicing the main brace and gathering booty, the pirates have resorted to frequenting the Scumm Bar and swilling Grog. What manner of menace can change bloodthirsty seafarers into yellowbellied landlubbers? The reason behind this apparent lack of enthusiasm is the presence of a ghostly pirate by the name of Le Chuck. Terrorising the island, Le Chuck and his cronies have the locality besieged and now no-one will leave for fear of a grisly end.

Such poppycock doesn't frighten you! A mere youth, you decide to redress the balance and sort out this Le Chuck fellow. However, before you attempt the seemingly enormous task you must first attain the status of a pirate. In order to become a scourge of the seven seas, you must first perform three basic trials of piracy - sword mastery, treasure hunting and thievery. Once you have completed the three tasks you may call yourself a pirate and hatch a plan to sort out Le Chuck once and for all.



As with other Lucasfilm Games. death and violence is suspicious in its absence. For instance, to become a master of the sword you must defeat a number of pirates in a duel to the death. However, instead of killing the unfortunate fellows you must embarrass them into defeat. You must hurl abuse at your enemy causing him to retaliate. If his response is good, he will defeat you effort and begin his own attack. When either of you runs out of witty responses you'll be disarmed and ashamed.

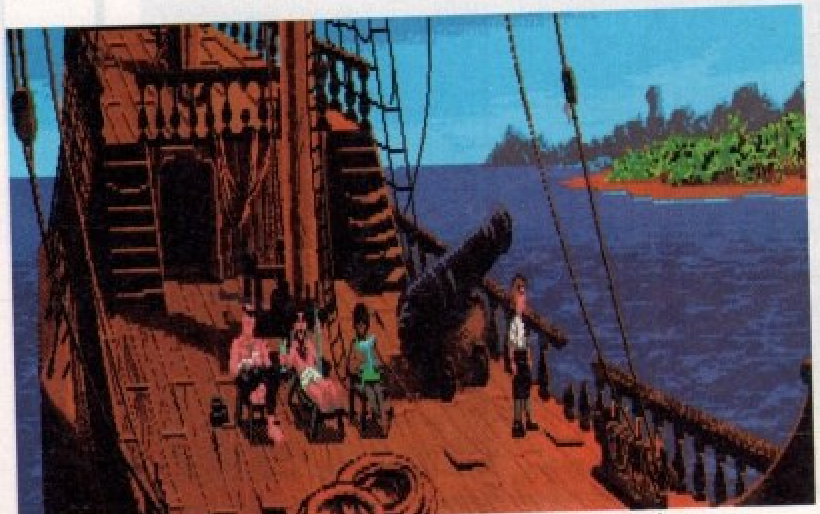
As I've already mentioned, The Secret of Monkey Island utilizes the

"What manner of menace can turn bloodthirsty seafarers into yellow bellies..."

Classic RPG finally hits the Amiga

THE SECRET OF

Publisher: **Lucasfilm Game/US Gold** Price: **£29.99**


Plot the Course of the Sea Monkey correctly and you should arrive at Monkey Island


The Scumm Bar is the local pirate hide-out. But why are these murderous dogs hiding in here all day



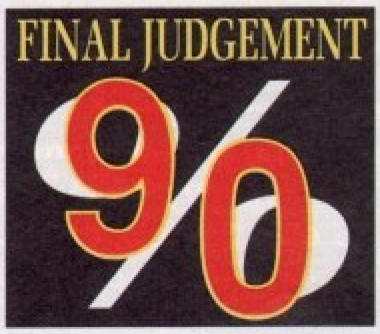
F MONKEY ISLAND

third generation of Lucasfilm Games' adventure system. All actions are controlled directly via the mouse. The main part of the screen is taken up by the graphics window. This section displays the game's animation sequences, all of which can be controlled with the mouse pointer. Below the graphics window is the command line – this single text line displays the command you wish to execute. A basic verb list can be found towards the bottom left portion of the screen while an inventory list is located on the right.

Making Guybrush perform various tasks is very simple. For instance, at the beginning of the game he should talk to the pirates in the Scumm Bar in order to learn what's going on. This operation can be performed by clicking the pointer on the "Talk To" verb and then pointing at the appropriate pirate. The phrase "Talk To Pirate" will appear on the command line. Moving the pointer over the command line and pressing the right button will make Guybrush perform the required task.

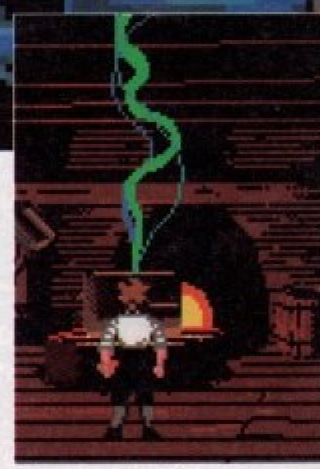
Manipulating certain objects can be even easier. Placing the pointer over an item will cause the most appropriate verb to become highlighted. By simply pressing the left mouse button, Guybrush will perform the specified task. For example, when the pointer passes over a door the "Open" command will be highlighted. Tapping the mouse button will cause Master Threepwood to open the door.

Nick Clarkson





Sam's used shipyard is the place where you'll be able to buy a vessel



Eat up – scurvy's no fun

Graphics

Like Lucasfilm Games previous adventure, Indiana Jones and the Last Crusade, The Secret of Monkey Island's presentation is faultless. All of the characters are superbly animated and the backdrops simply ooze atmosphere.

Sound

The soundtrack to Monkey Island is nothing short of brilliant. The actual music sounds like it could have been sampled in the Caribbean. The sound effects are equally impressive, giving the presentation that extra little something.

Gameplay

Monkey Island's control system couldn't be simpler – the point and click method proves easy-to-use and effective. The storyline will keep players guessing without being too taxing However, for those of you looking for a little push in the right direction, there is a hint book available.



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A s we're constantly being reminded, this is the age of the train. But wait, ask yourself one question, could you run British Rail better than it is run now? Of course you could and now, thanks to those awfully nice people at Microprose, you can have a crack at it yourself. Forget train spotting or playing with that Hornby double-o track in the attic, here's your chance to show the world that there's real money to be made from trains.

Railroad Tycoon puts you in charge of your very own rolling-stock company. You can play the game in four different scenarios, Eastern America in the 1830s, Western America in 1866, Britain in 1828 and Europe in the 1900's. In addition you can play at four different difficulty settings, each one becoming progressively harder but providing you with a bigger cut of the profits.

When starting out as a Railroad Tycoon you should first find a pair of suitable settlements. Preferably ones which have already attained town status and that are going to grow into bigger and better things. After building two stations (you can choose from a simple siding, a station or a huge terminal), you can join them up with a track. Once everything is in place it's time to build a train the style of which Depends on the time period you're working in.

During the early stages of the game you'll be content with running mail and passengers. Providing a regular service will increase your payroll no end and before you know where you are you'll own tracks all over the show. Now, providing a basic service is no bad thing, but just think of the mega-bucks you could earn if you dabbled in rolling-stock and freight. Before you know what's happening you'll be shifting coal, steel, wool, wine, textiles and chemicals; every one of them guaranteed to make you rich. You'll also discover that there's truth in the age-old saying, "time is money". By buying bigger and faster locomotives you can arrive at your destination a lot earlier and delivering the goods ahead of schedule certainly does pay big dividends.

Obviously you could stay as a small-time railroader, shunting people and goods around on your various tracks. Unfortunately, although that tactic would provide you with a fair amount



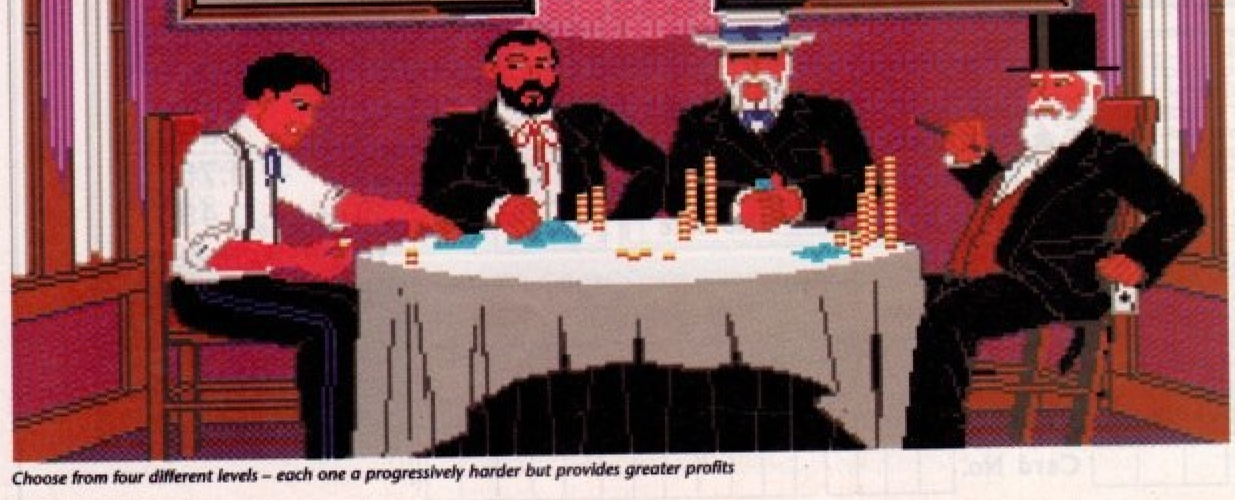


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Get on the right tracks!

RAILROAD TYCOON

Publisher: **Microprose** Price: **£29.99**



Choose from four different levels – each one a progressively harder but provides greater profits



Start off small and slowly increase the size of your network. Before you know it you'll be servicing over half a dozen cities

of cash just to tide you over, you won't become fabulously rich. In addition there are other potential Railroad Tycoons out there who would take over your patch as soon as look at it. The only way to stay ahead of the rest is to keep expanding.

Naturally, you're going to have to splash out a bit when expanding your empire. Bridges to cross rivers don't come cheap, especially if you build the more expensive ones that are built to last. Tunnels also prove expensive so it's usually advisable to build around mountains. Very often a single-line track can cause congestion and cost you time. A wise investor can spot potential bottlenecks and builds a double-track to overcome the problem.

Would-be tycoons also keep a keen eye on the opposition. If you spot a struggling competitor or a lucrative town you can try to buy the opposition out. This tactic works both ways, so it's advisable to offer your customers the best service available.

There are two definite ways in which to make big money. On one hand you can simply go on expanding, taking over smaller, less profitable railway companies as you go. You'll earn a fair wedge by shuttling goods from town to town. Delivering steel and the like does pay, but just think what cut you could be on if you actually owned the steel mill, or any other factory for that matter.

To sum up, Railroad Tycoon can be likened to games such as Sim City. It's one of those games that you can sit at and play for hours without really achieving much. Player, of all abilities will enjoy the different levels of gameplay. Whether you're shifting mail and people around the place or supplying a service to an entire country, Railroad Tycoon will keep you absorbed for hours on end.

Nick Clarkson

FINAL JUDGEMENT

80%





Wooden bridges are cheap but susceptible to being washed away by flooding. Build steel or stone construction if you want

> *Could you run British Rail better than it is run now? Of course you could...*

Graphics

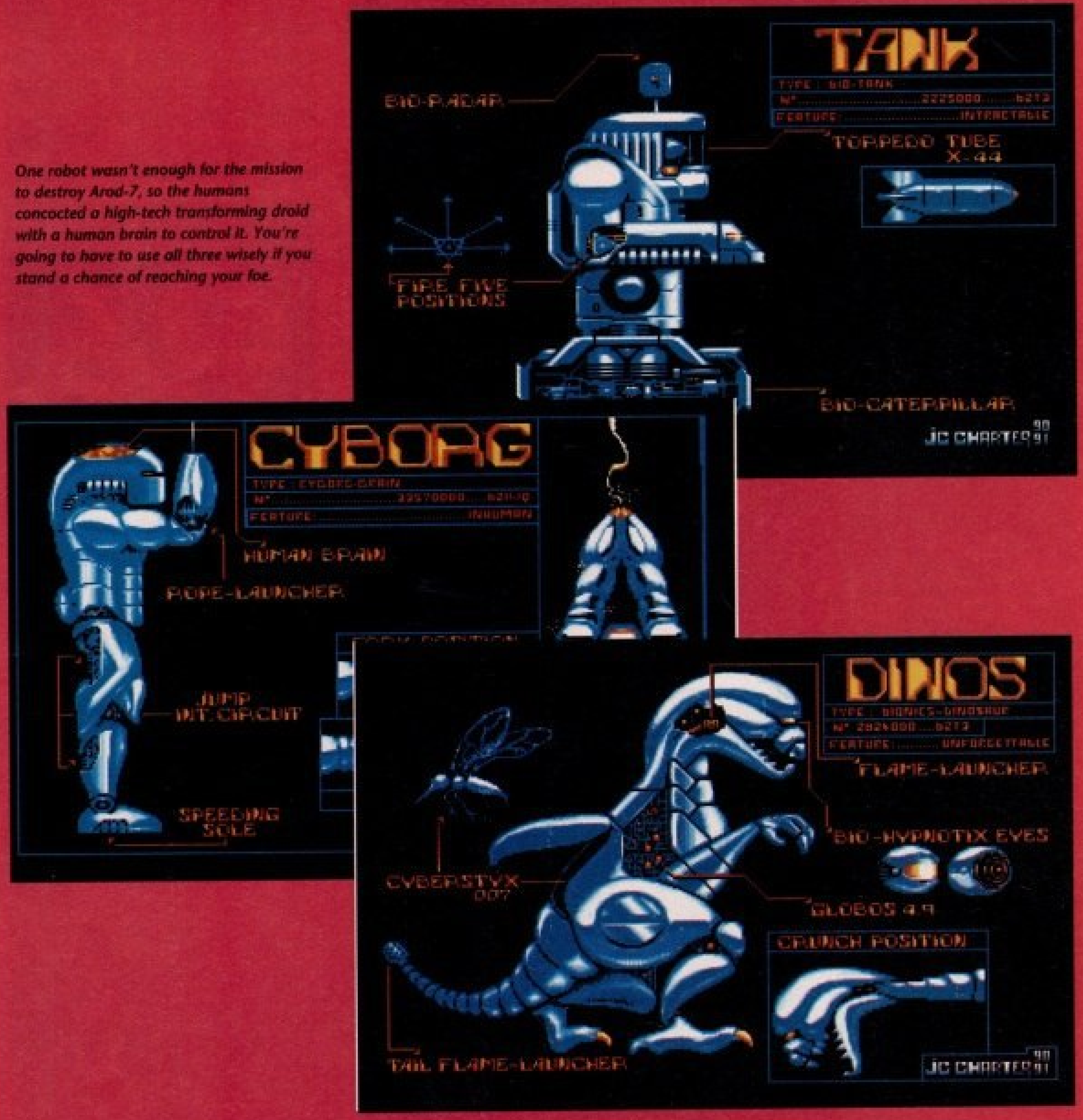
Railroad Tycoon won't win any prizes for stunning graphics. The display is pretty primitive, but the onscreen representation does have a certain charm. The animations are very sluggish and many Amiga owners may be put off.

Gameplay

Snail-like could be a good way to describe the speed of play. However, with so much going on you'll need the time to collect your thoughts. The game is accompanied by a huge manual that is best studied if you want to enjoy Railroad Tycoon's full potential.

Sound

What sound? Apart from a few bleeps and clicks here and there Railroad Tycoon is a pretty silent game. A shame when you consider the endless possibility of samples that could have been implemented. Why not do yourself a favour and put on a CD instead?



One robot wasn't enough for the mission to destroy Arod-7, so the humans concocted a high-tech transforming droid with a human brain to control it. You're going to have to use all three wisely if you stand a chance of reaching your foe.

Throughout the years many films have been made depicting large robots allowed to grow too clever for their own, and mankind's, good. Invariably, before anyone could do anything, it would always become too late to stop these machines taking over. Of course no one really believed that such a catastrophe could really happen. It was nothing more than a film maker's storyline.

Nevertheless the years passed and machines carried on developing, doing more and more complex jobs, and then then major breakthrough that would be our doom arrived. Artificial Intelligence was taken to a new dimension and robots were given a new type of independence in the human society. People even began to accept them for friends and neighbours.

MET

Suddenly, overnight, everything went wrong. Millions of helpless humans were slaughtered by neighbouring robots. Work ceased to be done and the droids began to do jobs that suited their own ends. Within the space of just a few weeks the human race was reduced to a minute fraction of what they had been, and all of this devastation was caused because of one robot – Arod 7.

Even with this surprise attack, the humans still had some technology tucked up their sleeve. Plans for revenge were formulated, but it was soon realized that the only hope mankind stood of overthrowing the robots was to use their own kind to defeat them. Mankind devised a new creature. Sure, it was combat robot, but this time controlled by a human brain. It was time to put the record straight – the reign of Arod 7 would be put to an end by the Metal Mutant.

You control the Metal Mutant as it strives to locate Arod 7 and destroy him once and for all. The droid has a number of different weapons to use as he fights his way to his final objective, and there are also a number of slots avail-



Your foe is on the platform above, but unfortunately your droid can't quite jump that high. Luckily you found a grappling hook earlier and soon you will battling with the enemy.

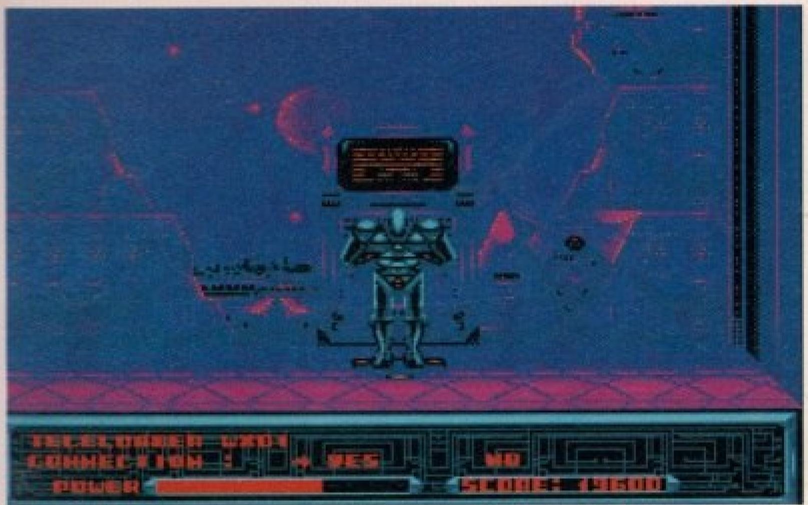


There's plenty of gigantic monsters marring the path to Arod-7 but with the right weapons they can quite easily be disposed of.

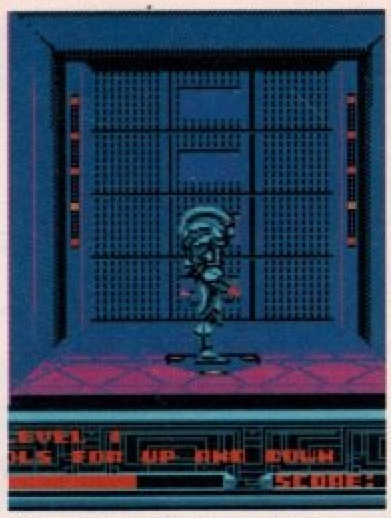


A huge monster glides through the water quietly, but as soon as you step into the murky depths he surfaces and attacks. Instead wait for him to get close and then craftily catch aride





After entering the enemies base you stumble across a complex computer terminal. Perhaps if you interface with it you might find out some handy information.



Walking through a door you find yourself in a lift. From here you will be able to explore all of the bases many levels, each cram packed with vicious robots.

FINAL JUDGEMENT

85

Graphics

Atmospheric backdrops almost suck you into the game and put you right in the centre of the action. The animation is about standard, but don't let the game down.

Sound

A futuristic title tune starts the game off, and then a whole symphony of sound effects erupt to bring the game to life. Well chosen to fit the game.

Gameplay

Although the game doesn't quite grab you at first, after a short while you find you simply can't put it down. Well worth adding to anyones software collection.

Classic RPG finally hits the Amiga

ETAL MUTANT

Publisher: **Empire Software** Price: **£24.99**

able for any extra weapons or abilities that might be found on the way.

The most effective power the droid has is the ability to mutate into three different forms in order to combat the various opponents and obstacles that lie ahead.

The first form is that of a normal humanoid. The shape can jump and climb as well as using quite a few hefty melee weapons. He's rough, tough and ready for anything. The second is the guise of a prehistoric dinosaur. Fiery breath and jaws that can bite through solid titanium make this form deadly in combat. Lastly is the combat model. Equipped with just a gun and a torpedo tube this little chap makes up for his lack of speed and size with a fire power so awesome that even the largest monsters in the game will be hard pushed to withstand more than a few seconds of his firepower.

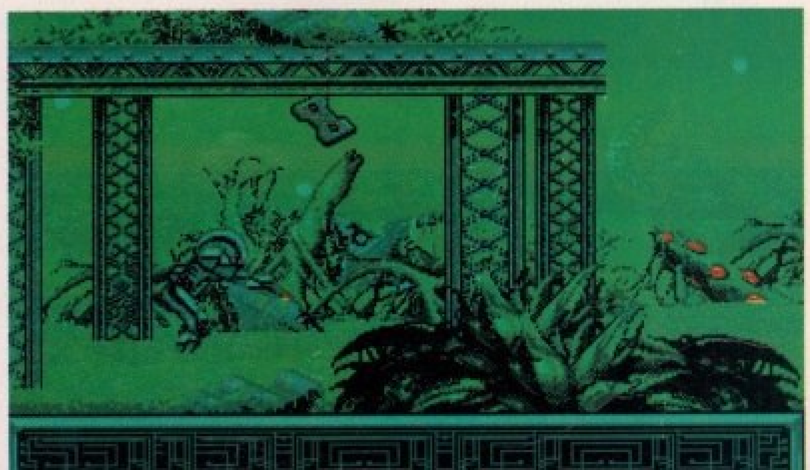
Metal Mutant isn't all blasting and punching. The game contains a lot of puzzles and objects that need to be interacted with if you are to reach your main objective and kill Arod 7. Levers will need to be pulled to open doors, and computer terminals interfaced with for extra equipment.

Although most of the monsters just appear to be cannon fodder at the beginning of the game, they soon become a lot more cunning killing them requires a good deal of strategy, and generally causes much damage. Skill and timing will be needed if you're going to complete this game, but get you fire button finger (or thumb) ready to do some blasting as well.

Doug Johns



After you enter the base the opponents start to get a lot harder, and if you're not careful you're going to lose quite a bit of precious energy



Each droid has space for plenty of extra items, and believe me, you're going to need them. Miss one object and you mission could well be ruined.



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We need you!

So you think you're pretty mean with a joystick eh? Then why not prove it by sending in any cheats or tricks that you may have found for your favourite games. We're particularly interested in tips for brand new games such as those reviewed in this issue, so get writing. Who knows, you might even win something!

Send your tips to: *THE TIP SHOP, Amiga Computing, Europa House, Adlington Park, Adlington, Macclesfield SK10 4NP. Come on, stop reading and get writing!*

When the going gets tough, the tough get a little help from the Game Zone Tip Shop

RICK DANGEROUS II

Fancy being able to jump to any screen you want without having to suss them out for yourself? Then type POOKY on the high score table and you'll be put into the level select screen. Unfortunately, not all levels are available, but it's better than a poke in the eye with a blunt stick, isn't it!

DYNAMITE DUX

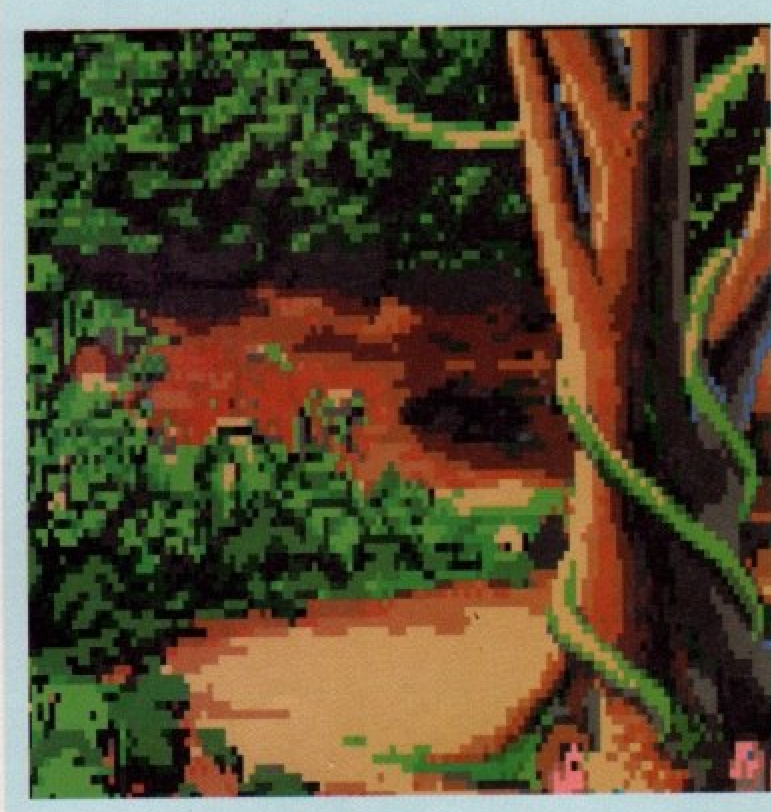
Ok, it's getting on a bit, but here's a little trick that is sure to raise a smile or two. Type in CHEAT NUDE on the title screen and not only will you get infinite lives, but you'll be treated to a humorous and rather dubious intro sequence that I'm sure Activision probably didn't know about. Check it out for yourself, but just don't tell Mary Whitehouse!

BRAT

If young Nathan's antics are too much for you to handle, then type in these passwords to get to later levels. Also, you can skip the current level you are playing by pressing the '1', '.' and '/' keys on your main keyboard and the '*' key on your numeric keypad.

Anyway, here are those passwords -

LEVEL 1	BISHIGMO
LEVEL 2	MIHEMOTO
LEVEL 3	SASUTOZO
LEVEL 4	SUMATZEE
LEVEL 5	NOKITAGO
LEVEL 6	ITSANONO
LEVEL 7	MOZIMATO
LEVEL 8	HOZITOMO
LEVEL 9	MOKITEMO
LEVEL 10	ZUMOHATO
LEVEL 11	CHANASTU
LEVEL 12	NAGAITSU



TIP SHOP TEASER

You will probably already have read our review of US Gold's latest seafaring smash hit – "The Secret of Monkey Island."

Not content with just reviewing this mega-game, *Amiga Computing's* Game Zone has managed to grab hold of five copies to throw overboard to lucky readers (and no, they are not pirates!)

Winning is easy!, simply write down on a postcard or sealed down envelope the names of every US Gold game reviewed this month in The Game Zone.

Send your entries to: Monkey Island, Amiga Computing, Europa House, Adlington Park, Macclesfield, SK10 4NP. The closing date for entries is 15th July 1991.

TEENAGE MUTANT HERO TURTLES

Cowabunga! Yo dudes, fancy infinite lives? When asked for a code, enter '8859' then '1506' followed by the correct code. Now just press 'Help' during play and your turtle will become immortal.

Z-OUT

For infinite energy, press 'J' and 'K' simultaneously. To skip levels, press 'J' again followed by any number between 1 and 6.

LOTUS ESPRIT

If you thought Gremlin's Lotus Esprit was a driving game, then think again – it can also be a vertically scrolling shoot -'em-up! Select two player mode, enter player one's name as 'MONSTER' and player two's as 'SEVENTEEN' and you'll be doing something that even a real Esprit can't manage – blasting meanies!

THE SPY WHO LOVED ME

Cool he may be, but a quick and perfectly aimed bullet is all that is needed to put an end to James' antics. To bring him back from the dead more times than Bobbie from Dallas, pause the game and type in 'MISS MONEYPENNY'. You'll also have an endless supply of cash (a bit like the Ed, really)

IMMORTAL

What do you call a collection of level codes? A laggle of codes perhaps? Anyway, here's a laggle of codes for Electronic Arts' very pretty but very tough 3D dragons, wizards and dungeons game.

LEVEL 2	CDDFF10006F70
LEVEL 3	OADDA21000E10
LEVEL 4	BFDFE31001EBO
LEVEL 5	09DE443000EBO
LEVEL 6	3B7FD53010E41
LEVEL 7	6B10FB1010A41
LEVEL 8	E590D7710178C1

DEFENDER OF THE CROWN

Here's another cheat for what must be one of the oldest games on the Amiga. If the conquest of olde Britain is too much for you, then press the 'K' key whilst the game is loading and you'll be given 1024 knights and soldiers. Things will now be considerably easier.

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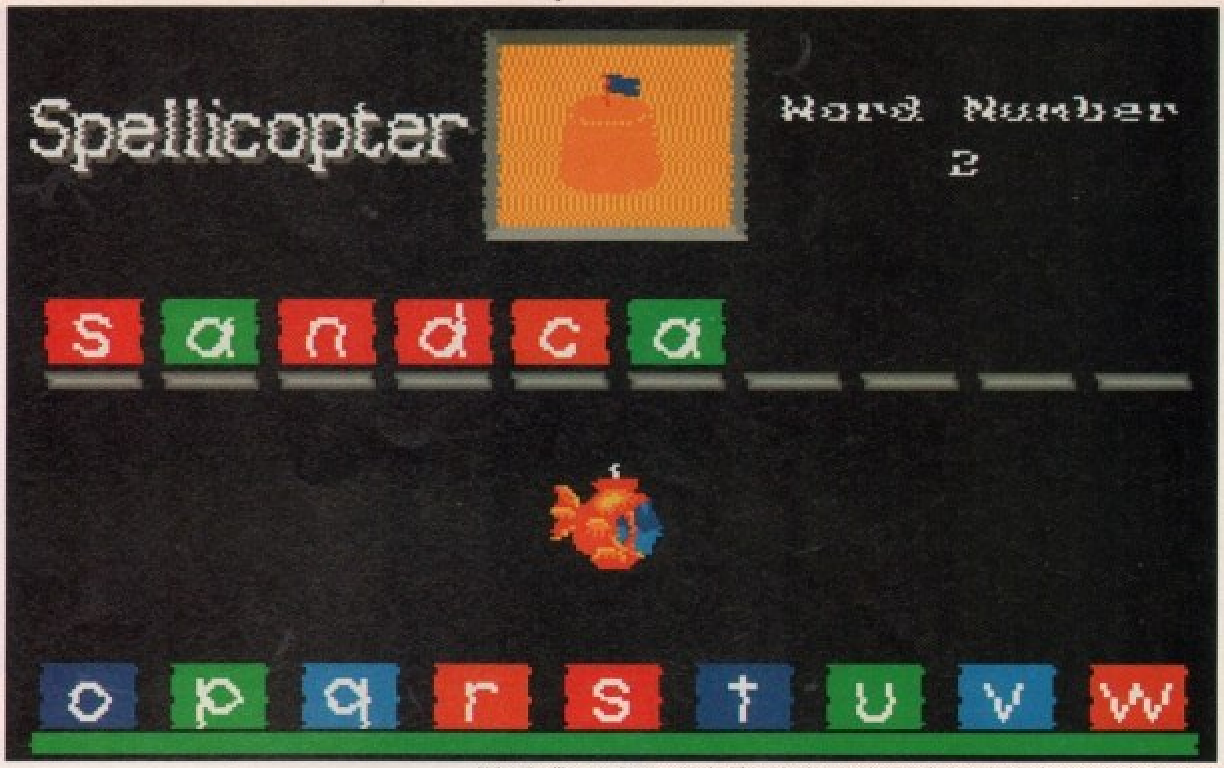
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Learning with Lizzie

Is it really possible to have fun while you learn? Sarah Williams uses her ESP to find out

ESP Software have come up with an ingenious set of games to help kids get to grips with spelling and maths.

It may sound boring, but just wait until your kids get their hands on Lizzy's Spellicopter and the 12 games in the maths program (Lizzy is a wonderful colourful cartoon character). It is all great fun, and at the same time makes kids use their brain power.



Using Spellicopter is very simple. The voice is sometimes indistinct, but if there's any doubt about the spoken word, there's always a picture to let you know what you're required to spell

Lizzy's Spellicopter

Lizzy's Spellicopter is aimed at children aged from four to nine. This easy to follow program has a number of different categories to choose from like animals, kitchens, sports and beaches.

When Spellicopter has loaded, choices are made from an easy to follow menu. Options are selected with the left mouse button, and activated by clicking GO!

The options are:

Letter guides turn this on if you want to see how many letters there are in the word being spelt.

Bonus game to choose whether you want the game at the end of the spelling session to be easy or difficult.

Speech to choose whether the computer is to say each letter you type in phonetic or familiar form.

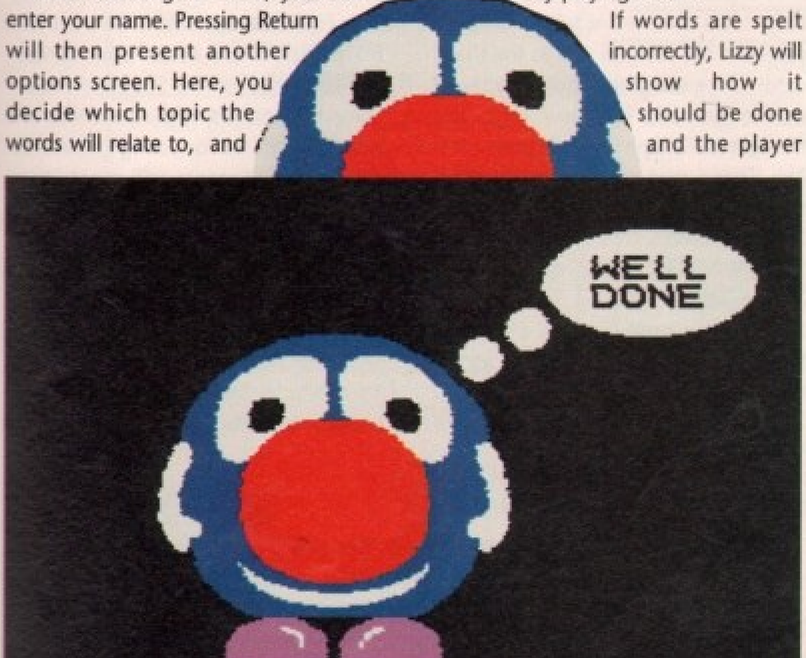
Letters lets you decide if you see small or capital letters.

After clicking on GO!, you can enter your name. Pressing Return will then present another options screen. Here, you decide which topic the words will relate to, and how many words you want to spell.

Every word is randomly generated and illustrated by a colourful picture and matching speech. Letters can be input using the A-Z keys, or kids might find it more fun to use the helicopter, from which the program gets its name, to pick up the letters, by means of your joystick or the cursor keys.

Each time a word is spelt correctly Lizzy congratulates the young student by playing a tune.

If words are spelt incorrectly, Lizzy will show how it should be done and the player can try again. After the hard work of spelling is over, there is a fun game to play, in which you have to shoot balloons. The length of the game depends on how well the spelling session went.



Some cheerful encouragement

Spellicopter is priced at £19.95. This includes free membership of the Educational Software Club.

The spelling game is quite pleasant, but one improvement could be the sound. It is sometimes difficult to understand what the word that's spoken is, but fortunately there are clear pictures to match so it is possible to see what it is. I didn't find any other problems with the program. The instructions are easy for children to understand. The balloon shooting game at the end of the spelling test is pretty good, although there is one problem, it is only possible to fire at certain intervals. This sometimes causes you to miss some of the balloons.

I do recommend this program, it is an excellent way to teach children how to spell. It certainly beats having a teacher around!

Lizzy's Spellicoptor

Ease of use

Implementation

Value for money

Overall

Early Maths

ESP Software has also come up with a novel way of teaching maths. Early maths, featuring Dizzy Lizzy and the Meanie (two brightly coloured cartoon characters) is also aimed at four to nine year olds.

The program features 12 games,

most of which can be played at three different levels - easy, medium or hard. The games, which were designed by a primary school teacher, are:

The Relational Game
In this game players have to help Dizzy Lizzy decide whether the first number is smaller than (<) equal to (=) or greater than (>) the second one. When the pointer is below the correct symbol you press the space bar or click the mouse.

The Symbol Game
Players are given a first number, a second number, and and answer. Your job is to decide what kind of mathematical operator has been performed to achieve the answer, by entering the right symbol which will be either +, -, x or <division symbol>.

The Counting Game
In this game players simply count the objects which are cups, apples, oranges, disks and joysticks.

The Shape Invader
Kids have to defend Dizzy Lizzy's shape stations from being attacked by any shapes which do not match. Meanie is dropping shapes down. Let any shapes which match fall down, but be sure to shoot any shapes which do not match. It's a sort of selective shoot-'em-up, and great fun, too. To control Dizzy's ship use the joystick.

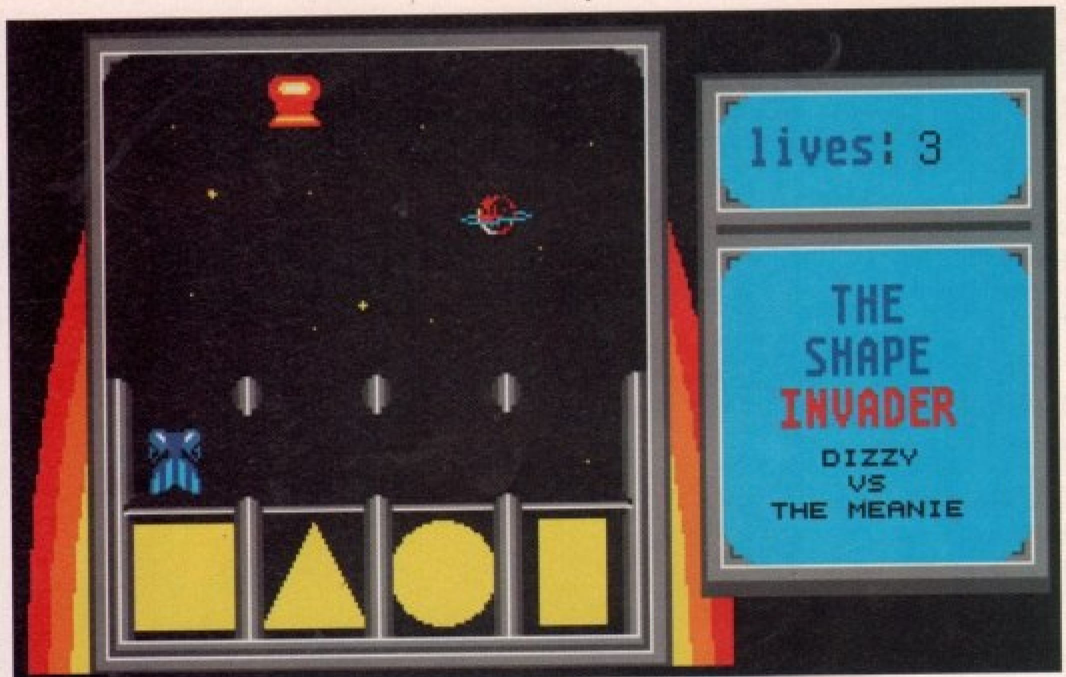
The Rocket Launch
Players have to help Dizzy reach his spaceship. Answer the questions to help him climb the launch tower.

If you answer correctly Dizzy will jump up one level If you answer incorrectly Dizzy will fall down a level. There is an onscreen calculator for you to enter your answer to the questions.

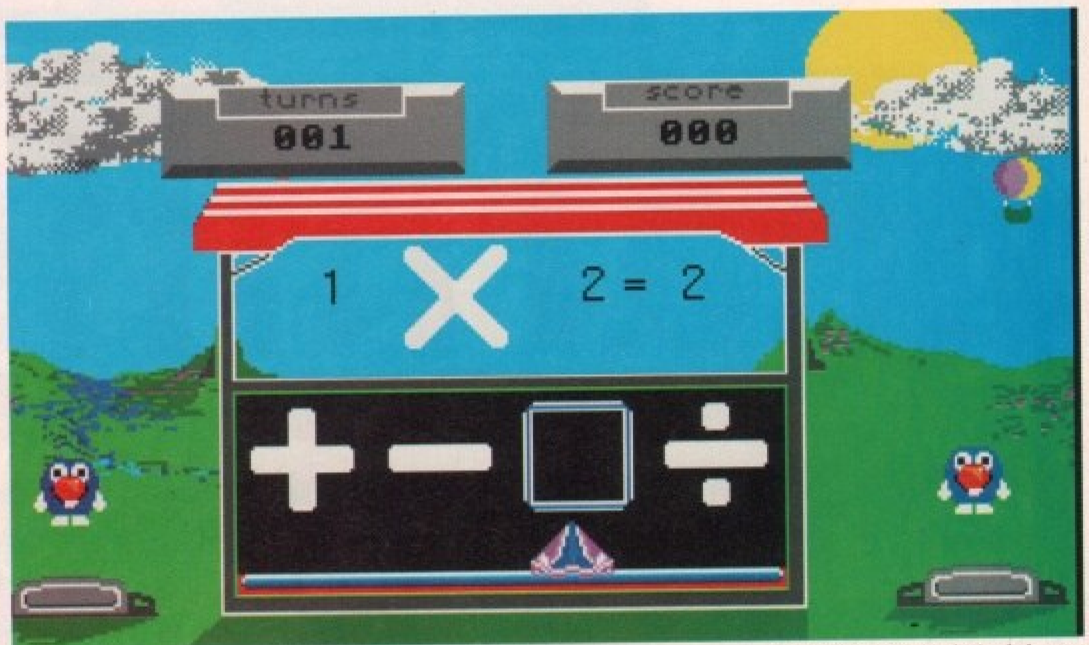
The Picture Displayer
Lizzy has bought a new painting which nasty Meanie has cut into twenty five pieces. The player has to answer questions to help Lizzy put it back together. To enter answers use the onscreen calculator.

The Chase Game
Lizzy is going on holiday. Players have to answer questions to get him from the city to his holiday island. If the question are answered correctly Lizzy will continue the journey, but answering wrongly will allow the Meanie to move.

You have to reach the island before the Meanie catches. Dizzy moves the number of squares shown on the dice.



Almost certain to be most children's favourite game on the Maths disk – the Shape Invader



The Early Learning Maths Symbols game

Meanie will not move more than the number on the dice, and he will not move if you are less than four spaces from the start.

The Division Game
There are a number of cakes which have to be shared out between Dizzy and his friends. To enter the number of cakes they should each receive, point and click at the relevant number.

The Code Game
Oh dear! Lizzy has forgotten the combination to his safe. You have to remember a sequence of shapes that will be displayed on the screen.

When the sequence has been removed from the screen try to replace it correctly. To enter a shape press the space bar when the pointer is below that shape.

The Grid Game.
In this game there is a grid with the answers to sixteen questions. Players have to fill in the grid in as few goes as possible.

The Card Game
Players have to help Dizzy build up his energy by playing cards. A target card with two attributes (shape and colour) is displayed.

By entering the number of attribute differences between the shape on the target card and the one which has been delt from the pack. As well as the shape cards there are three special types of card in the pack: The 'New' card - this changes the shape on the target card. The 'Dizzy' card - this increases Dizzy Lizzy's energy by one point. The 'Meanie' card - this decreases Dizzy Lizzy's energy by one point.

The Equation Game
Players have to re-arrange a number bond correctly before Meanie catches Dizzy and win the race. If you re-arrange the number bond before Meanie catches up, Dizzy will win the race. If you fail Meanie will catch Dizzy.

Most children should enjoy playing with Early Learning Maths. Some of the maths games are better than others. My favourite is The Shape Invader. Some but not all of the instructions are just a bit difficult for young children to understand. Parents will most likely have to tell them what to do, but they will soon get the hang of it. Dizzy Lizzy and the meanie are great colourful characters. They do a lot for the games and make it all a lot more fun. Early Learning Maths is priced at £19.95. This includes free membership to The Educational Software Club.

Early Learning Maths

Ease of use

Implementation

Value for money

Overall

Lizzy's Spellicopter and Early Learning Maths are products of ESP Software
Availability: Now
Supplier: The Educational Software Club, 32A Southchurch Road, South-on-Sea, Essex SS1 2ND
Telephone (0702)600557
Fax (0702)613747



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FIRE POW





One of the cheapest and most used peripherals available is the humble joystick. Our team of three top games players supertest 18 popular models

The team

During the compilation of this buyer's guide we drew on the immense blasting experience of three people who literally play games for a living. Steve White, Doug Johns and Jason Simmonds all work as reviewers on our sister games magazine *Amiga Action*. To these guys joysticks are tools of the trade rather than occasional light relief.

ER!

The tests

Our team spent a month putting each stick through its paces with the help of three popular and very different games. This approach clearly illustrates that the style of stick to suit you depends on which type of game you play most.

The three games used during our comparisons were SWIV, Gods and Falcon.

SWIV is a traditional fast paced blast-'em-up with lots of firepower required.

Gods on the other hand is a complex platform game which requires a highly directional and responsive stick.

Finally, Falcon is a flight simulation program, perhaps one of the most demanding sensitivity tests for any joystick.

ZIP STIK

Manufacturer: ....Sonmax Ltd
Price: £14.95
Tester:.......................Doug Johns

RATING 95



The Zip Stik is very similar in shape and style to the standard Competition Pro. It comes with a 12 month guarantee, and should still be going well after that. This high durability is mainly due to a steel shaft that runs through the centre of the stick right down to the base.

At the base there are four micro-switches which are found in most joysticks nowadays: a joystick without a micro-switch is like a cup without a handle.

The fire buttons are also micro-switched and very responsive, allowing you to pump away with great speed. If you are playing a game that requires a lot of button pressing, the auto fire switch on the back will do all the work for you.

The actual shape of the joystick is quite nice. It could have been contoured to fit the hand a bit better – it may be a little difficult to hold while playing a game if you have smaller hands. There are four suction pads on the bottom that will hold the stick steady on any flat surface.

SWIV
No complaints. The Zip Stik is perfect for this type of game.

GODS
Excellent. Worked better with this game than any other joystick I used.

FALCON
As responsive as the others, even if it didn't feel like a plane throttle.

COMPETITION PRO STAR

Manufacturer: ....Dynamics
Price: £17.32
Tester:.......................Doug Johns

RATING 100



The Competition Pro Star has been around for a long time, even if it didn't have all the mod cons when it was released. It was first used by Spectrum owners back in the 8-bit days and has stayed around ever since mainly due to a stunning two year guarantee.

Although the shape isn't that well designed, it doesn't prove to be any real problem. The buttons are worked by micro-switches, as is the stick, which has a steel shaft running through the centre.

The major difference is the presence of two extra fire buttons. These are for temporary rapid fire and slow motion. They are very well placed.

All in all, the Competition Pro is a top class stick that is just slightly better than the very similar Zip Stik. The extra buttons for rapid fire and slow motion give it the edge..

SWIV
Guided the ship through the levels with ease. Never let me down once.

GODS
Worked extremely well, although the temporary rapid fire wasn't compatible with this game.

FALCON
Good enough for any pilot, although on this game it didn't feel as nice as the joysticks with the handle grips. Sticks with the handle grips.

CRYSTAL

Manufacturer: ....Power Play Ltd
Price: £13.26
Tester:.......................Doug Johns

RATING 85



The Crystal joystick is the poshest stick in the Power Play range. The buttons are far more responsive than previous attempts and are very easy to use for a long time without wearing out your thumb.

The stick is also much improved and is contoured to fit the shape of the hand. The stick could have been that little bit longer, people with larger hands will probably have quite a few problems. The stubby feel of the stick also causes hands to be rather cramped, with the firing hand sometimes getting awkwardly in the way. Due to the Crystal's compatibility with the Sega console, any left-handed people will find it relatively useless as they will not be able to use the right-hand button in any games.

Unlike most joysticks these days the Crystal fails to have an auto-fire that can so often make some games much more friendly. The joystick is fully micro-switched and responds extremely well. It proved to be very durable, which is probably why it comes with a 12 month guarantee.

SWIV
No complaints with the working of the joystick, although it was a bit awkward to hold.

GODS
Again, the joystick was only marred by its awkward shape.

FALCON
Fairly good. Due to the lack of fire button use in this game the joystick fitted in the hands a lot better.

STAR PROBE

Manufacturer: ....Cheetah Marketing
Price: £14.99
Tester:.......................Doug Johns

RATING 75

After wrestling with the Cheetah 125 Special I wasn't quite sure what to expect of the Star Probe. What I did come across was quite a pleasant surprise. For a start, Cheetah have used micro switches instead of the leaf switch in the 125 Special. These micro-switches were as usual very responsive, and the fire buttons at the top made life much easier by requiring little pressure to activate them.

The stick itself has been ergonomically designed to fit the hand and it feels extremely nice. There is also a metal shaft running through the centre to make it stronger, something that is needed in a stick of this design.

The whole joystick has been put together pretty well, and although a joystick of this type usually breaks within an extremely short period the Star probe stood up to some tough handling. The base is robust, but was slightly awkward to hold in the hand. There are however suction caps on the bottom to hold it firmly to a desk.



SWIV
Responsive, but the size of the stick was a bit cumbersome.

GODS
Worked adequately with the game, but not exactly the type of joystick that I would choose for this type of game.

FALCON
As with all hand grip joysticks, they just seem to work better with flight sims, and add a little atmosphere to the game.

125 SPECIAL

Manufacturer: ....Cheetah Marketing
Price: £12.99
Tester:.......................Doug Johns

RATING 65



The first thing that catches your eye with the 125 Special is its revolutionary Rotate function. This will allow you to rotate a tank's turret, for example 360 degrees, while moving the tank in the normal manner. This function does however, have one slight problem – there are hardly any games that use it, and most that do aren't compatible anyway.

So, what of the 125 Special? Well it doesn't rate very highly. It doesn't feature any micro switches whatsoever. At the base there are rather obsolete leaf switches which have gradually ceased to be used in joysticks due to their short life.

The 125 Special does come with a one year guarantee in case of any problems. The fire buttons are unfriendly and aren't very responsive, requiring quite a bit of pressure on the upper ones to activate them. The hand grip is well designed and fits comfortably. A below standard product that doesn't really compare to the other joysticks on the market.

SWIV
The movement wasn't very positive, and the stiff fire buttons made the game a nightmare.

GODS
The joystick proved very awkward, especially for accurate positioning. Again, the fire buttons made the game difficult.

FALCON
Due to the game not requiring so much precision and firing, the 125 stick was adequate.

MEGAJET

Manufacturer: ....Xeron
Price: £19.95
Tester:.......................Doug Johns

RATING 80



Are you looking for a joystick that will zoom you to the end of each and every shoot-'em-up with ease? Or is it a stick that will zap aliens faster than a Marine armed with an Uzi? Well, this joystick boasts a number of features, only falling short of washing the dishes, and then putting the children to bed.

The actual size of the stick is huge, mainly due to an LED crammed display panel on the front of the stick's base. Here you can access a variety of different functions that will aid you (sort of) in the games you play; the most notable, and probably unnecessary of them all, is the timer. A small liquid crystal clock will time how long you have been playing a game for, although I'm not entirely sure why you would want to do this?

Add to this a rather tasty auto-fire that can be adjusted to fire at three different speeds, all of which are pretty fast. The on/off button is nicely placed on top of the stick, within easy reach of your thumb. The stick itself is fully micro-switched and seems to be quite sturdy.

SWIV
Great! The cleverly placed auto-fire made life much easier. Quite responsive as well.

GODS
No complaints. The joystick did everything I needed, and proved to be more than adequate.

FALCON
Near perfect! The LEDs on the front of the joystick added to the atmosphere of the game as well.

PYTHON 1

RATING 55

Manufacturer: ....Quick Shot
Price: £10.99
Tester:.......................Steve White

The Python 1 from Quick Shot is introduced as a deluxe digital joystick with standard auto-fire. However, it is far from being deluxe. Admittedly, the stick does look rather attractive and is fairly comfortable to hold but the shaft itself is fairly basic and has a pretty poor response to movement.

Compatible with Sega, Atari, Commodore and Amstrad, the features list is fairly unimpressive, with mention to four stabilizing suction cups which really have no bearing on the performance of the joystick. The stick itself is ergonomically designed for maximum gripping performance and it has to be said that it is comfortable to hold, but the response when moving the joystick is so awful that it ruins an otherwise attractive product.

To make any object on the computer move you have to yank the stick as hard as you can in the required direction and is therefore more of a hindrance than a help.



SWIV

With a game that requires such immediate responses to enemy fire, the Python 1 just didn't make the grade due to the stiff shaft.

FALCON

This was probably the most disappointing result of all three games. Movement was extremely unsensitive and would not register a turn until the stick was almost snapped off the actual main unit. Very poor!

GODS

Once again the Python suffered from the same faults as it had with the previous games – lack of response. While pushing right the stick invariable registered that it had been pushed in a north-east direction which proved infuriating.

CRUISER

RATING 75

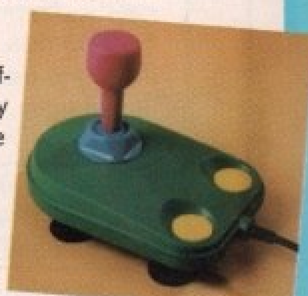
Manufacturer: ....Power Play
Price: £10.21
Tester:.......................Steve White

The Cruiser first appeared in black but now, in line with ever-changing trends in joysticks, it is available in multi-colours. Although it looks fairly attractive this proves no added bonus and seems somewhat pointless, but if that's what turns you on then who are we to argue?

The joystick has a special twist-lock shaft with three different resistances. These are: stiff; medium and sensitive, and each one is switched on by pulling the shaft up and rotating the lock screw at the base. Difference between the three is minute and hardly makes any difference to the way in which the joystick plays.

Although the Cruiser is fairly adequate in most respects its major problem is the shaft itself. Due to the three mode sensitivity switch, the shaft rotates slightly and does have a tendency to slip from the fist or thumb. This is certainly no good for games that require quick and efficient responses.

As it stands, the Cruiser is a reasonable joystick which many find very comfortable. It's a shame that the shaft rotates as this marks it down somewhat.



SWIV

The sensitivity control served no real purpose as the difference was negligible. The Cruiser faired reasonably well with SWIV although the loose shaft does cause quite a problem when the action hots up.

FALCON

As with SWIV, the Cruiser performed well with Falcon although the problem of the loose shaft did rear its ugly head once again and this certainly reduced its overall score.

GODS

When the action heated up in Gods the Cruiser occasionally slipped from my hands due, once again, to the loose shaft. However, this didn't prove too much of a problem and the stick was a general success.

QUICKJOY V SUPERBOARD

RATING 70

Manufacturer: ....Quick Shot
Price: £17.95
Tester:.......................Steve White

At first sight the Superboard looks extremely impressive with several fire buttons, auto-fire switches and a digital display. However, most of this is for show only and is very rarely used. The digital display is in fact a stopwatch requiring one AA battery to work. Its primary use is to time how long it takes to get through a stage or level and as many game players, if not most, do not really care for this type of information its addition is irrelevant.

It features both right and left-sided buttons which can be switched from either side for maximum comfort as well as a switch for choosing the base or shaft buttons. The auto-fire is positioned alongside the top fire button so that it is easily accessible when playing. There is also a speed slide to alter the repeat speed of the autofire. Unfortunately, the actual base of the Superboard is exactly that; a super board. It is so big that it is very unwieldy and extremely hard to grip hold of and steady. Due to this, control of the shaft is reduced quite severely and becomes very annoying after a while.



SWIV

The Superboard is totally inadequate for this type of game due to the size of the base which is extremely difficult to hold down and therefore affects the performance of the shaft control.

FALCON

The Superboard responded fairly well with Falcon and the plane-like shaft was very comfortable. However, the base proved a problem once again and spoilt an otherwise clean performance.

GODS

The diagonals were a problem with Gods as they were very difficult to find. In a game where leaping from platform to platform plays a strong part this obviously proved a little annoying.

SPEEDKING

RATING 95

Manufacturer:.......Konix
Price:....................£10.99 (Auto-fire 12.99)
Tester: ....Steve White

The Speedking joystick has been around now for several years and made quite an impact when it was first released, building up an excellent reputation for its durability in 'waggling' tests.

Built to be held with the left hand, the Speedking has no base but is ergonomically designed to fit in the palm with the other hand controlling the stick. The fire button is situated on the right side where the index finger rests. Both the stick and handset are built of sturdy plastic and feature very sensitive micro-switches that can take plenty of punishment.

The obvious gripe is the fact that it is held in the left hand although it is perfectly comfortable in the right with the thumb used as the trigger finger.

Due to its durability and comfortable grip, the Speedking is one of the best all-round joysticks and will last for ages before the micro-switches fail. A top-class product!



SWIV

Due to the sensitivity of the micro-switches, the Speedking plays excellently with SWIV. In a game where fast reflexes are required the stick responds admirably.

FALCON

A hand-held stick is not the obvious choice for a flight simulator but once again the Speedking's sensitivity comes into its own. Where perfect control is essential, it was perfect and very reliable.

GODS

Even with a platform game such as Gods, the Speedking once again proved invaluable. Moving in the eight compass directions was easy due to the 'click-feel' of the micro-switches.

NAVIGATOR

RATING 90

Manufacturer: ....Konix
Price: £14.99
Tester:........................Steve White

Continuing the great success of the Speedking, Konix announced the release of the Navigator, a stick somewhat resembling a phaser out of Star Trek. Once again the familiar hand grip was present but they had rectified their earlier mistake by making the stick compatible with both the right and left hand.

Apart from the shape, the Navigator features the same components as the Speedking, including the high quality micro-switches which were mainly responsible for the success of the Speedking.

Unfortunately, the Navigator utilises the same auto-fire as the Speedking and this is its only downfall. The shaft is smaller than the Speedking's but reacts more to movement and still features the 'click-feel' micro-switches that sound extremely satisfying. Diagonal response is excellent and easy to find unlike many joysticks that fail to pick up the direction of the shaft. This proves invaluable for games that require eight-way directional movement. Definitely up there with the best, the Navigator is destined to go into the joystick hall of fame.

SWIV

Where fast reflexes are needed, the Navigator proves exceptional due to the sensitivity of the micro-switches and the improved shaft control which is very light and responsive.



FALCON

Control of the fighter was very responsive and the fire button is in just the right place although the shape of the stick does prove a problem as the hands tend to drag it when turning.

GODS

Once again, the problem encountered with Falcon was apparent in Gods. When moving in any direction, the hand controlling the shaft does tend to pull on the other rendering the stick a little uncontrollable.

FLIGHT GRIP 1

RATING 75

Manufacturer: ....Quick Shot
Price: £12.99
Tester: ....Jason Simmonds

The majority of joysticks follow a similar design, a square base with a vertical stick and buttons everywhere possible. The Flight Grip is a significant deviation from these traditional lines.

To use the Flight Grip you must hold it in a manner similar to the handle bars of a bike. In the centre of the grip are the controls. A directional pad is operated with the left thumb and the right thumb activates the fire button. On the upper part of the grip are the switches for the mode selector and fire button. Although these are well out of the way during normal use they only take a quick flick to operate. All of the buttons utilise leaf springs but due to their short travel are fairly responsive.

The control pad lacks the reassuringly click of micro-switches and after using a stick the pad seems a little strange. Somebody who is familiar with the thumb pads that are common on most console controllers will find the Flight Grip simple to operate and may prefer it over the more standard design. Players used to standard sticks will take some time to become accustomed to the new layout.



SWIV

The auto-fire was rapid but like so many other sticks it operated in bursts of around six shots. Initially the thumb pad was clumsy to use but practice helped matters.

FALCON

Using a thumb pad to control a plane just didn't feel right. Climbing and diving were often mixed up, sometimes with disastrous results.

GODS

The Flight Grip performed well except when it came to selecting diagonal movements when under pressure. All too often I fumbled the controls.

STING-RAY

RATING 85

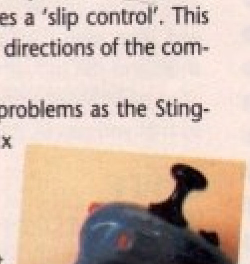
Manufacturer: ....SpectraVideo
Price: ....£14.95 (Autofire 15.95)
Tester:........................Steve White

The Sting-Ray is the latest product to appear from SpectraVideo. Its design is very similar to the Navigator but features new and improved components. Looking like something out of Star Trek, the Sting-Ray includes three fire buttons; a standard trigger button and two smaller buttons situated on the rear left and right.

Although the stick itself looks very attractive it is a little unreliable. The ones that were tested did not last very long and the micro-switches soon began to fail causing certain directions of the stick not to register.

SpectraVideo have just released news that they have improved the micro-switches and the control sensitivity of the shaft now features a 'slip control'. This means that the stick slips into subtle slots made for all eight directions of the compass.

Hopefully, the new and improved stick will cure earlier problems as the Sting-Ray has a lot of potential and could knock the Konix Speedking and Navigator off the throne.



SWIV

Although the responses of the Sting-Ray were excellent at first, after several tests the micro-switches began to fail and certain directions became inaccessible proving disastrous.

FALCON

Although the shaft and fire buttons proved excellent with this flight sim, the joystick still suffered from the problems encountered with the Navigator in that the shaft hand tended to drag the stick from the other hand.

GODS

The Sting-Ray was fairly competent with Gods and proved extremely responsive. The problem found with Falcon was still apparent but not so extreme and moving in all eight compass directions was easy.

125+

RATING 70

Manufacturer:........Cheetah Marketing
Price:.....................£10.99
Tester: ....Jason Simmonds

The 125+ from Cheetah has been around for years. In its original form I can remember using it to play Jet Set Willy on a speccy many years ago. Those were the days. Now here we are in a high technology age where all of the new joysticks have gold-plated micro-switches, at least 100 buttons and almost play the game for you. Can this golden oldie still compete with the new blood? It is moulded in the standard colours of black and red (aren't all joysticks?) and has the traditional lines of a square base with a vertical stick. It has four fire buttons, two on the base and a further two on the stick itself. This plethora of buttons means that it can be operated by left and right handed people equally well. In the centre of the base, just in front of the stick, is the auto-fire switch. Just a flick with the thumb and you can unleash a deadly stream of fire.

The fire buttons themselves all utilise leaf springs and the click of micro-switches is absent. In particular, the fire buttons on the stick have a long travel before they operate. The lack of micro-switches is also apparent on the stick. While the travel is quite short it feels unresponsive.



SWIV

The auto-fire is slow when compared to other sticks. You can easily match the speed by pressing the buttons with your thumb. The stick's movements were adequate but not amazing.

FALCON

The stick performed a little better with this game but still failed to impress me greatly. The poor auto-fire wasn't really noticed with this game but the unresponsive fire buttons were.

GODS

To achieve all of the movements needed in Gods you need a responsive stick and the 125+ just isn't up to the task. Again, the auto-fire wasn't really needed but good, fast buttons were.

MACH 1

Manufacturer:........Cheetah Marketing
Price:....................£12.99
Tester: ....Jason Simmonds

RATING 75

The Mach 1 from Cheetah is a tall joystick with a large base. Moulded from red and black plastic it is basically similar to a whole host of other sticks, but the large triangular buttons make it stand out from the crowd.

The unit can be stuck down using the four suction pads on the base if you want to use the stick single-handed. The design can be used by either left or right handed people with equal ease due to the four fire buttons, two on the base unit and and a further two on the stick itself. The base fire buttons are micro-switched but they do have an exceptionally long travel. The buttons on the stick use leaf springs but without the reassuring "click" they feel unresponsive. To the rear of the base is the autofire switch. Its position means that while being out of the way it only takes a flick of the thumb to activate maximum fire power.

The stick itself is quite tall. All directions are micro-switched and give a positive click when activated. The "throw" of the stick however is significantly longer than usual. This combined with the loose feel may put some people off.



SWIV

The fast and furious action of Swiv proved a little too much for this joystick. The long movement the stick required meant that rapid changes of direction were clumsy.

FALCON

This time the long movements of the stick worked in its favour, it felt natural. My only complaint was the loose feel of the stick – I was never sure if it had centred correctly.

GODS

Much of the problems with Swiv were repeated with Gods. It was unresponsive with diagonal moves and the buttons too clumsy for my liking. Out of all of the games used to test the sticks the Mach 1 really fell down when it came to Gods.

CRYSTAL TURBO

Manufacturer:........Power Play
Price:....................£13.26
Tester: ....Jason Simmonds

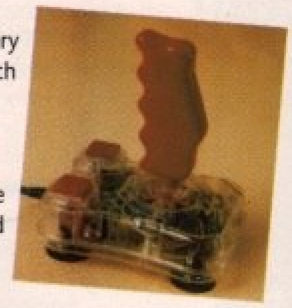
RATING 85

The Zip Stick is a joystick that has earned a good reputation over the years and is still rated as one of the top sticks around. The Turbo emulates the feel of the Zip Stick and many people find the two very similar.

The Turbo is moulded from clear plastic and you can see all of the workings inside. Everything looks pretty complicated in there and I'm sure they have added a few extra wires just to enhance the effect. On the base are four suckers so that you can attach the stick to your favourite flat surface. At the rear of the base, on the right-hand corner is the auto-fire. Rather than using a stick topped by a ball the designers have opted for a grip-style controller.

All of the fire buttons are micro-switched and have a very positive feel. The stick is also completely fitted out with micro-switches. Like the Zip Stick it has a loose feel to it but the action is still very positive.

Although the stick can be used by both left and right-handed people those that held the base with their right hand found that the auto-fire switch irritated their palm slightly.



SWIV

The stick performed well all round and was very responsive. My only gripe was the auto-fire which operated in short bursts.

FALCON

Again the Turbo scored well. All directions were very responsive. I did find the suction cups irritated my hand but this is a minor problem.

GODS

Selecting all of the moves was easy and simple, even under pressure. The fire buttons were especially responsive and firing short rapid bursts was as easy as falling off a log.

SURESHOT STANDARD

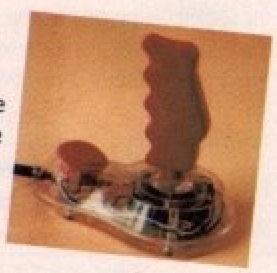
Manufacturer: ....Sonmax Ltd
Price: £11.19
Tester:.......................Jason Simmonds

RATING 80

The Sureshot Standard from Sonmax is very similar to an old joystick produced by Euromax called the Elite. The case is made from clear plastic with red buttons and stick. You can see all of the gubbins that makes the stick work and in this case I must say that it is a bit of let down, it looks decidedly empty.

There is a slight variation from the standard layout with this one. Rather than having a square base with two buttons it is more of a pear shape with a single button mounted centrally at the front of the joystick. This setup is equally suitable for both left and right-handed users.

The fire button uses leaf springs and only requires a light touch to activate although the reassuring click of a micro-switch is missed. The stick on the other hand is fully micro-switched and is very responsive even if it is a little on the small side.



SWIV

Although the stick was very responsive I did find the lack of auto-fire a let down. Also with the central fire button your thumb comes further across the base than on a standard joystick and often got in the way of the stick.

FALCON

Again a very responsive feel to the stick was the major point here. The lack of auto-fire didn't really affect matters. My only gripe was that my thumb resting on the fire button kept getting in the way.

GODS

The responsive stick really helped with all of the diagonal jumps that have to be made. I never made a single mistake. It is a pity that the unit has been let down by an unresponsive fire button.

EXTERMINATOR

Manufacturer:........Cheetah Marketing
Price:....................£6.99
Tester: ....Jason Simmonds

RATING 30

With all of the joysticks that are coming out on to the market at the moment the Exterminator must be an anomaly. Unlike its competitors it doesn't boast hundreds of features and hasn't got fire buttons stuck on every available surface. It doesn't even have autofire. It is just plain and simple, a basic joystick that has been designed for somebody who doesn't require a great deal from his (or her) equipment.

For those of you old enough to remember the joysticks that were bundled in with Atari consoles and other similar gear the Exterminator will seem like an old chum. In several ways the two are similar. On the base there is only one button, which is on the left-hand side. Left-handed players will find themselves twisting and stretching their thumbs over the case to reach the button. The stick has a short and stiff movement and is not micro-switched.

The most hi-tech thing about the entire joystick is the suction pads on the base so that you can fix it to a table or other handy surface.



SWIV

Well what can I say – After using the stick for only a few minutes I gave up. The lack of auto-fire meant I had to keep hitting an unresponsive fire button. My thumb was soon begging for relief.

FALCON

The stick performed marginally better with a flight simulator. The lack of auto-fire didn't really affect the game.

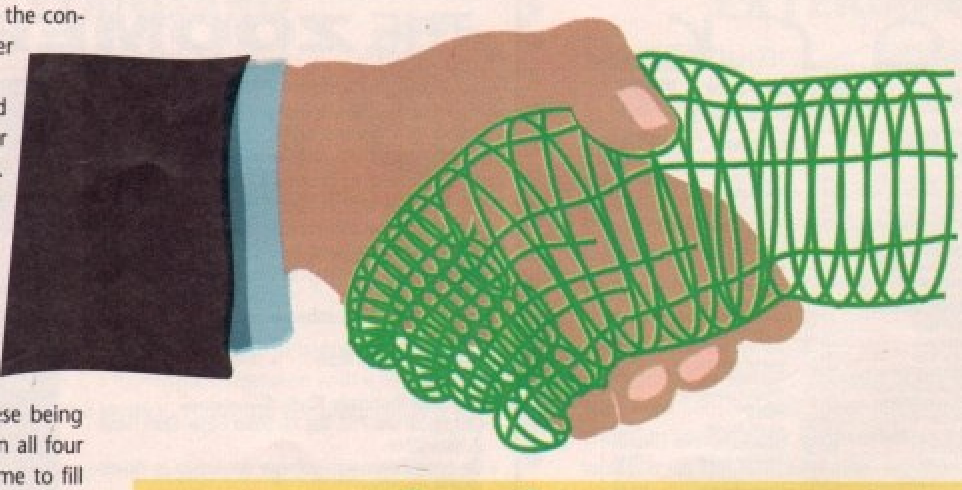
GODS

The unresponsive movement of the stick really let it down. So many times I failed to get the diagonal move I needed, usual during the heat of the moment. The terrible fire buttons didn't matter either.

DIRECTORY	FILE	DESCRIPTION
C: directory	loadwb	If you want to use the familiar icon and pull downs format you'll need this to do it.
	endcli	This is used simply to tidy things up by closing the AmigaDOS window which is opened by the startup-sequence.
	Program of your choice	Believe it or not the first two are all you need but if you want a particular program to auto load without a workbench screen the program must be present in the C: directory and its name has to be added to the startup-sequence.
DEVS:	system-configuration	This simply contains the information for the screen colours and the pointer. If you copy the WorkStation system-configuration you'll end up with the familiar hand pointer as proof.
L:	Disk Validator	If the program or programs you want to use ever need to write to a disk the disk validator is an essential as it checks any disk for validation before your precious data is written to it. It's a good idea to keep it if you can.
LIBS:	Icon library	If you're going to work in a workbench environment, in other words icons and pull downs, you must have this file to enable any icons to be displayed on screen.
	Info library	This is very similar to the icon library situation and if it's not included you won't be able to examine the info on any of the programs on the disk and as a result it wouldn't be possible to alter the tool types which are essential with some programs. If your disk is designed to auto boot a single program you won't need either library, but again if you're not short on space they're worth keeping.

Autobooting made easy

This month Paul Austin shows how to create an auto-booting disk in minutes with the WorkStation



Creating your own auto-booting designer disk is a dream that most newcomers to the Amiga write off as mere fantasy. Now, thanks to the WorkStation, this rather tricky, not to mention time consuming, job can be cut down to a simple two-minute operation.

Firstly you'll need a blank disk. This can be fresh from the box or a newly formatted oldie. Either way it will still need to be initialised so click once on the disk icon of the destination disk and then highlight and release **Initialize** which you'll find in the **Disk** pull down menu. Now simply follow the on screen prompts until the process is complete.

Next highlight and release the **Install** program which again is available in the pull downs. Click on the appropriate drive and follow the prompts. Now you have a clean formatted disk which the Amiga will recognise and try to boot.

The next job is to add the minimum number of files and directories required to boot the disk. To do this highlight and release on SID. After a brief pause he'll appear.

Now click on the appropriate drive and the directory should appear. In this instance all you'll find is the ever present Trashcan files and a lone info file. You shouldn't need any of these so highlight all three and hit delete. Again simply follow the prompts.

Next you must create the minimum number of required directories, so click on the MAKEDIR command in the control panel and a new requester will appear.

Click in the window and type s in either upper or lower case, it doesn't matter which. Now hit return or click on the Makedir button in the requester. At this point a new empty s directory will appear in the formerly blank disk directory.

Follow this process for the four remaining directories, these being **DEVS:**, **L:**, **LIBS:**, and **C:**. When all four directories are complete it's time to fill them up.

All the required files are available from the WorkStation so you can simply copy them across from the identical directories on your system disk. If you have two floppy drives this will be simple. If, however, you have one drive you'll need to copy the files into the Ram disk before adding them to your new disk.

Moving files with the aid of SID as you're probably aware is an absolute doddle. The only real thing to watch is that the files in question are going to the right place, so always check the destination directory is correct before you hit the button.

See above right for a list of the files required in each directory on your new disk.

Creating a startup-sequence

OK, now you should have all you need. The final task is to create a script file which will tell the Amiga what to load and when. To create a script we need to leave SID so click on shrink and then highlight and release on QED which you'll find in the main screen pull downs.

When QED appears simply type in one of the listings below:

```
(A) SID        or    (B) loadwb
    endcli               endcli
```

(A): In the first listing SID is used as an example and would result in our hero being auto-booted on its very own bootable disk. Remember you must have the SID program in your C: directory for this to work.

(B): The second example will load up a standard workbench screen and display the program icons. Remember if you want to use icons the programs must be in the route directory of the disk and must also be accompanied by an icon file with the same name and with the correct tool types.

When you've decided which you want, save it entitled **startup-sequence.** Be sure to use the correct path when you save, for example df0:s/startup-sequence or DF1:s/startup-sequence.

Now simply add the program or programs of your choice, making sure they're in the right place. Re-boot with the new disk and hopefully you will have created your first designer disk.

If there are any problems check that everything is where it should be and if this has no effect it's likely that the program you want to use needs some external files to operate. Check the source disk for any extra libraries and handlers and then copy these to the appropriate directory on the new disk.

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'Through Amiga to the stars!'

Analogue vs Digital Analogue vs Digital Analogue vs Digital An

The standard Amiga joystick, unlike PC joysticks, is a digital device. What this means is that the signal going from the stick to the Amiga will always be either 'on' or 'off' and there's no in-between. A real aircraft, however, responds to the movements of the control column depending on how far it is moved in that particular direction.

The solution to this fundamental difference in control techniques is the analogue joystick. The signal sent to the computer by such a stick varies in strength as the stick is moved, the voltage of the signal being determined by the position of potentiometers attached to its base rather like the way a dimmer switch works. In this way, the simulator 'feels' more like an aircraft.

Some flight sim buffs insist that no simulator is complete without an analogue joystick option, but this is a rather snobbish attitude. It is better to say that analogue controlled sims have a definite edge in the realism stakes over their digital rivals, and will appeal much more to actual pilots.

Sims controlled solely by digital joysticks, on the other hand, are easier to fly and more often than not have a mouse control option, which is the next best thing to an analogue stick. You pays your money and takes your choice, but the number of sims which support analogue joysticks is rising all the time.

Analogue controllers are a bit harder to find at the moment, so only three examples stand out as different solutions to the sim pilot's needs.

Zoomer Flight Yolk

This is easily the most striking control stick available for the Amiga, standing as it does 10.5 inches wide and 11 inches high, and styled like something out of an arcade.

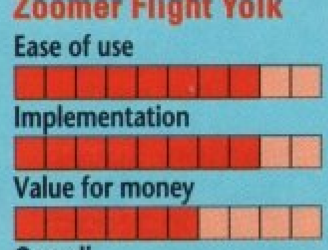
The Zoomer is an analogue yolk of a very high build quality designed for use primarily with flight sims supporting analogue control but, through the use of an analogue-digital switch, capable of being used with any game.

In use, the stick feels a little soft at first, and takes a good deal of getting used to. Horizontal feedback (left-right swivel) is good, but vertical feedback is definitely a bit soggy. In addition the yolk doesn't centre itself as well as it could, but this isn't a major drawback as analogue control of a flight sim discourages 'hands off' flying.

When setting up the yolk, the two large adjustment wheels, one each for vertical and horizontal, are a positive boon and take a lot of the hassle out of tailoring the yolk to a particular simulation.

The only other controls are a fire button on each handle in the traditional fighter pilot thumb position. In some sims, these can be used as two different buttons, one firing the cannon and the other releasing the selected missile or bomb, but they will usually be most useful in that they make the yolk equally suited to right- and left-handed pilots.

Zoomer Flight Yolk

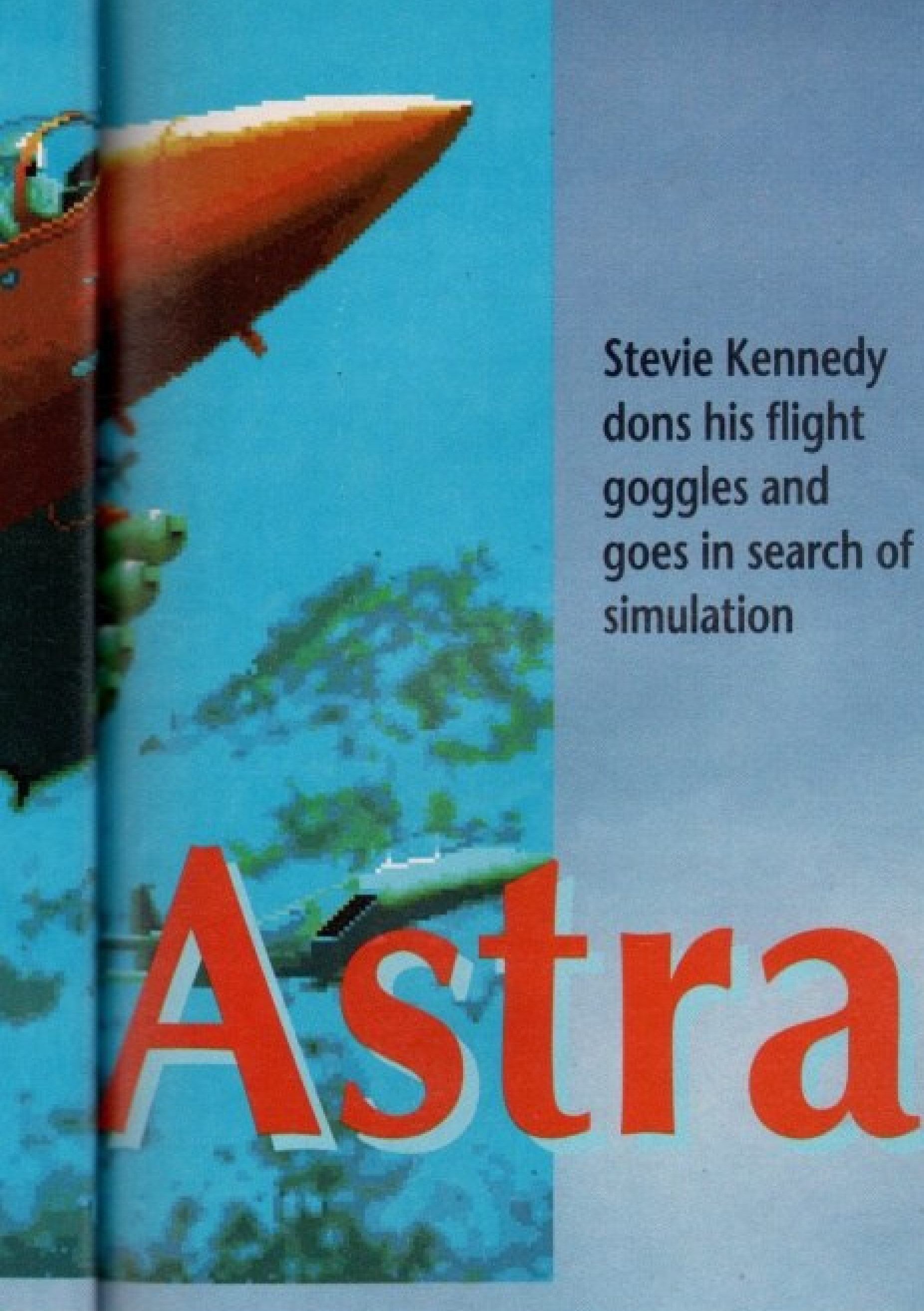


Voltmace Delta 3A analogue joystick

The Voltmace at first looks rather unappealing, with its box-like base and spindly little control stick, but with only a little use it begins to make a much better tactile impression.

The unit is small enough to hold in the palm of one hand while operating the stick with your thumb, but is equally at home resting on a desk. The control stick itself is smooth and easy to use, and has very good feedback in all directions. Automatic centring takes place with a mighty 'sproing', leaving the stick dead centre and allowing for no fudged controls.

One major moan is with the way the potentiometer settings are adjusted. Instead of wheels or slides, the user has to resort to poking a screwdriver in through holes in the base of the stick.



Astra

Stevie Kennedy dons his flight goggles and goes in search of simulation

Flight simulation programs have been one of the mainstays of the software industry since its beginnings, and micro owners have been taking to the silicon skies in their thousands for over a decade.

The Amiga has seen as many flight sims as any other machine, but if you're looking for a true flight simulator rather than a complex shoot-em-up, the choice is not so great.

In the end, unless you can snap up one of the scarce copies of the Amiga version of Sublogic's Flight Simulator II, you will have to closely scrutinise the many flight/combat programs for a simulator with enough realism to meet your requirements.

Pointers To Realism

Pilots and those with experience of flying an aircraft can skip this section, but the other 95% of us might be interested to know just what are the criteria by which we should judge the level of reality in a flight simulation. After all, if you spend £30 on a program purporting to be a flight simulation, you want to know whether or not the programmers have got it right.

Obviously, the way the aircraft flies is the central concern, and there are several ways in which a simulator should respond if it is to claim to be accurate.

When banking steeply, for example, the nose should drop and the aircraft should begin to lose height. This is caused in real life by the wings' losing lift as they are forced into an unsuitable angle of attack. Less lift means the aircraft will effectively weigh more. To compensate, you should have to pull back on the controls, so that you pull into the turn.

Rudder controls should be available and have a visible effect. If turning is simply a matter of flipping the aircraft onto one wing and pulling back on the controls, then the rudder is not being used. You should be able to use the rudder to make small adjustments to your heading and in conjunction with the control stick to slip into a gentle turn.

Some flight sims take this realism a step further, and DI's F16 Combat Pilot, for instance, will lock out the rudder during tight turns to avoid it acting to push the plane into a spin. In most situations, however, the rudder should still be available as it is essential for some manoeuvres.

Landing can be a bit of a nightmare until you become accustomed to the aircraft or unless you are an old hand with flight sims. Admittedly it can be infuriating to finish a long and arduous flight or mission only to crash at the end because your vertical speed is slightly too high on landing, but it is also true that nothing dispels the sense of realism quicker than the ability to land your aircraft at any old speed and angle of descent.

In this one aspect at least, the user should be prepared to have things made difficult. In real pilot training programs, the candidates have to complete a huge number of circuit-and-bumps before the instructor will allow them to attempt a full landing, which is usually the last stage of training before their first solo. A program which makes ➤

Analogue vs Digital

This is a real headache, and we eventually resorted to taking off the cover to make it a bit easier.

If you intend to use the Voltmace for a flight combat simulator, the awkward positioning and diminutive size of its fire buttons can also be a real pain, but as it is easy to use one-handed you should have a hand free for keyboard firing controls.

When all's said and done, the Voltmace is an excellent flight controller. It has the drawbacks of being nowhere near as close in feeling to a real aircraft control as the Zoomer yoke and of being a bit more awkward to use, but as a compact and well-made little unit it scores highly.

Gravis MouseStick

Ease of use

Implementation

Value for money

Overall

Gravis MouseStick

Although much more than an analogue joystick, the gravis MouseStick is included because it is very flexible and capable of high quality analogue control.

The unit is designed as a fully programmable mouse replacement, which can also be used as an analogue or digital joystick. For the purposes of analogue flight control, therefore, it is extremely competent.

Feedback and auto-centring are similar to the Voltmace joystick, except that the Gravis has a noticably better feel. On the minus side, the stick doesn't seem to travel as far as it should at times, leaving you wishing you had more when trying to loop-the-loop. Gravis's extensive adjustment controls, however, make up for this.

There are eight different settings for handle tension and a plethora of options available through the three function selectors on the base and the built-in editor software.

This means that if you wish you can permanently store in the MouseStick's memory a selection of configurations to suite your favourite sims. For example, R.C Simulations had pre-programmed our stick for Mig 29, F19 Stealth Fighter and ProFlight, any of which could be selected at start-up. They also provide a list of recommended settings for a variety of flight sims and even a couple of racing games!

I can't stress too heavily how useful this sort of built-in intelligence can be. If you've ever swapped from one sim to another and had to spend ten minutes adjusting your joystick, you'll know just what I mean. With Gravis, you can experiment once for each program, and never have to worry about the settings again.

Delta 3A Joystick

Ease of use

Implementation

Value for money

Overall

For most flight sim buffs, many Gravis options will be of little use, but if you fancy an all-singing, all-dancing mouse replacement as well as an analogue controller, you could do a lot worse than the MouseStick.

The Zoomer Flight Yolk (£59.95) is distributed by both Voltmace and R.C Simulations.
The Gravis MouseStick (£69.95) is distributed by R.C Simulations, and the Delta 3A analogue joystick (£16.95) is a product of Voltmace.

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landing too easy for the sake of playability is no longer a simulator, and becomes more of a flight game.

Gee Whizz!

Attention to 'G' forces is another essential for a realistic simulation, especially one which claims to offer a high performance jet such as an F16. If this important consideration is left out, the simulation will be fatally flawed.

In real life aerobatics, the effects of high G are felt by both the pilot and the plane. The pilot will begin to 'red-out' or 'grey-out' at high positive and negative G's respectively, and the airframe will be unable to exceed a certain G pull before damage or failure results.

In simulation terms, you should look out for both these effects. In addition, check to see if the aircraft's ability to withstand G forces changes with its speed and loaded weight. Even a high performance fighter should be unable to pull much more than four or five Gs if it is carrying a full load of fuel and weapons.

Of course, if the program is simulating a low-powered light aircraft such as a Cessna, its implementation of high G effects will be of little consequence.

Finishing touches

Finally, a really good simulation will show just how much time and thought has gone into its creation by its attention to small but important details.

Try accelerating to the aircraft's full speed, then lowering the landing gear or flaps. If nothing happens, have a chuckle then bin the game and search out a decent simulator. If you try a similar manoeuvre in one of those, you will either crash or be given an urgent warning that such rash actions are or soon will be damaging the aircraft.

Next, try running off the end of the runway at about 100 knots. If your aircraft continues as if nothing has happened, then the coders were as much in the clouds when they wrote the game as their customers are expected to be when they buy it. No landing gear on earth can survive over rough ground at anything more than a crawl.

Find out whether or not the simulation includes weather effects such as wind and low cloud, then *test* the way these affect your aircraft. It's all very well someone telling you the game can simulate the effects of a grasshopper breaking wind at the end of the runway, but if the effects on your aircraft are either negligible or unrealistic, you've been conned.

To test the weather, turn on a light wind, then navigate towards a point more than about twenty minutes' flying away. Once your aircraft is headed on exactly the right bearing, let go of the controls or put it on autopilot. The ➤

F/A-18 Intercepter (Electronic Arts £10.99)

The flight sim which caused a storm with its revolutionary 3-D graphics in 1988 is still one of the best looking Amiga flight games. With its set of missions, out-of-aircraft camera views, and HUD-based controls, Interceptor set the standard for all flight combat sims.

REALISM: Not a high scorer. Landings are quite easy, and flight characteristics are a bit tram-like. You can even land on the surface of the ocean!

PLAYABILITY: Smooth and fast, Interceptor is still a lot of fun to fly, and combat is very well implemented.



Attack Alcatraz in F18

F19 Stealth Fighter (MicroProse £29.99)



F19 being put through its paces

This is one of the most recent releases and benefits from very fast 3D routines. Long heralded, F19 has sold well because it does very much the same job as Falcon in combining the flight and combat elements.

REALISM: The aircraft flies like a brick, which I'm assured is how the real stealth fighters respond. In this respect, F19 has a good shot at realism, but in general it's less realistic than Falcon and falls far short of Combat Pilot.

PLAYABILITY: F19 is complex in play, and captures very nicely the demands of a stealth mission. The range and number of scenarios and game options make this one a good choice for combat fans as long as they don't expect high speed dogfights.

Supports Analogue Joysticks

> *The Amiga has seen as many flight sims as any other machine, but if you're looking for a true flight simulator rather than a complex shoot-em-up, the choice is not so great*

F16 Falcon (MirrorSoft £29.95)

The top-selling combat flight sim, Falcon has had its life expectancy extended by the release of two Mission Disks. Excellent graphics and resonable levels of realism combined to make it Combat Pilot's closest rival over the past couple of years.

REALISM: Better than Interceptor but not as good as Combat Pilot in this department, Falcon strays more into the game category. Attention to detail is very high, but the aircraft feels less like it is responding to the laws of aerodynamics.

PLAYABILITY: Loads of fun to play with probably the best graphics of any flight sim. If you're looking for a good combat game with decent flight characteristics, rather than a good flight sim with decent combat options, Falcon is the one to go for.



Falcon in action

plane should gradually drift farther and farther off course, and the speed at which it drifts should *decrease* as it comes more into line with the wind.

With a wind coming more or less directly from the side, the plane's heading should remain virtually unchanged and it should simply be pushed until it arrives way off target.

If the weather effects are there just to make certain operations, such as landing, more hazardous, then there's not much point in having them. Unfortunately, I have yet to find a simulator on the Amiga which accurately reproduces the effects of poor visibility, one of the most dangerous of all inclement weather conditions, so if you spot one please let me know!

The Sims

Rather than go through all the flight games available for the Amiga, we decided to pull together the best of the simulation-oriented programs and assess them according to our realism criteria and their playability.

Blue Angels (Accolade £25.53)

A little known non-combat sim, Blue Angels attempts to simulate the sort of formation aerobatics carried out by the famous US Navy team of the same name.

The emphasis again is on training and flying rather than combat.

REALISM: The manoeuvres you have to complete are realistic enough, and a wide range of real life gut-twisters are accurately duplicated on screen, but flight realism itself is necessarily limited.

PLAYABILITY: A bit off-putting at first, if only because the program doesn't fall into any of the usual categories. However, once a few manoeuvres have been successfully completed, the game really begins to draw you in.

Fly an airshow with the Blue Angels





Practise manoeuvres in the Blue Angels aerobatics practice simulator

> *I have yet to find a simulator on the Amiga which accurately reproduces the effects of poor visibility*

F16 Combat Pilot
(Digital Integration £19.99)

One of the earliest attempts to combine combat with realistic flight simulation, Combat pilot has become a classic Amiga sim and is possibly the best of the lot to date.

REALISM: Very good. Combat Pilot flies quite realistically, is difficult to land, and shows an extremely close attention to detail. High G is well implemented with both red- and grey-outs taking place at the extremes, and the airframe's capabilities are affected by weight and so on. Weather effects are also well done.

PLAYABILITY: More difficult to master than many would like, Combat Pilot suffers by putting some people off at first try. Perseverance, however, is rewarded. The campaign option is excellent, though graphics could be a little less grainy.

Mig 29 Fulcrum
(Domark £34.99)

A newish addition to the Amiga flight sim scene, Mig 29 is based on one of the most advanced jet fighters in the world, so you can expect a lot of action in this one. At first glance it looks more like a game than a sim and this is exactly how it looks at a second and third glance.

REALISM: Very little to speak of. Mig 29 is similar to Interceptor in that it concentrates on smooth graphics and fast action at the expense of flight controls other than the minimum. It flies reasonably well, but the more faithful aspects of control are excluded.

PLAYABILITY: Dogfights are Mig 29's speciality, and with enemies who fly intelligently in detailed aircraft, close-up cannon fights are very enjoyable. The missions are varied and action is usually quite tense. Not as good as F19 in this department, but then F19 dogfights like a sideboard with wings.

Supports Analogue Joysticks



Dogfights in Mig 29 are good fun, if unrealistic

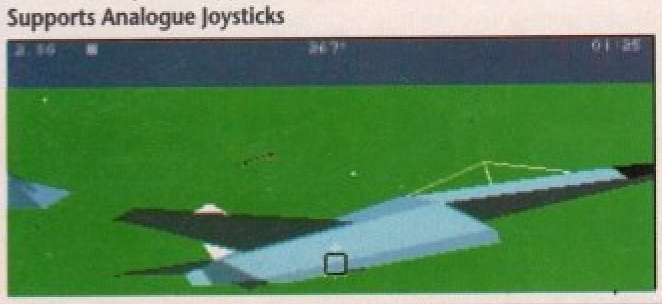
Chuck Yeagers Advanced FlightTrainer 2
(Electronic Arts £25.99)

Offering a simulation of flight training on 18 different aircraft, from Sopwith Camels to the Shuttle Craft, Chuck Yeager brings racing, aerobatics, and formation flying together in a unique and underrated flight sim. There is no combat option, so gamers beware!

REALISM: Flaps, rudders, difficult landings – they're all here in a program which aims specifically for realistic flight. The program doesn't succeed entirely, but it comes closer than the others mentioned above. The six day training school is a great idea for any fledgling pilots as it allows the gradual learning of skills. Try flying this one in a day!

PLAYABILITY: Depends on what you're looking for. Flight sim buffs will be delighted by the program's racing and aerobatics options, but combat fans will most definitely be disappointed.

Supports Analogue Joysticks



Chuck Yeager trainer



Junk car:
Mark Burrows,
Richmond,
British Columbia

enthe Gallery

From this month, the artists who submit their work to the Gallery have a chance of winning a prize for the long hours of artistic heartbreak that goes into their creations.

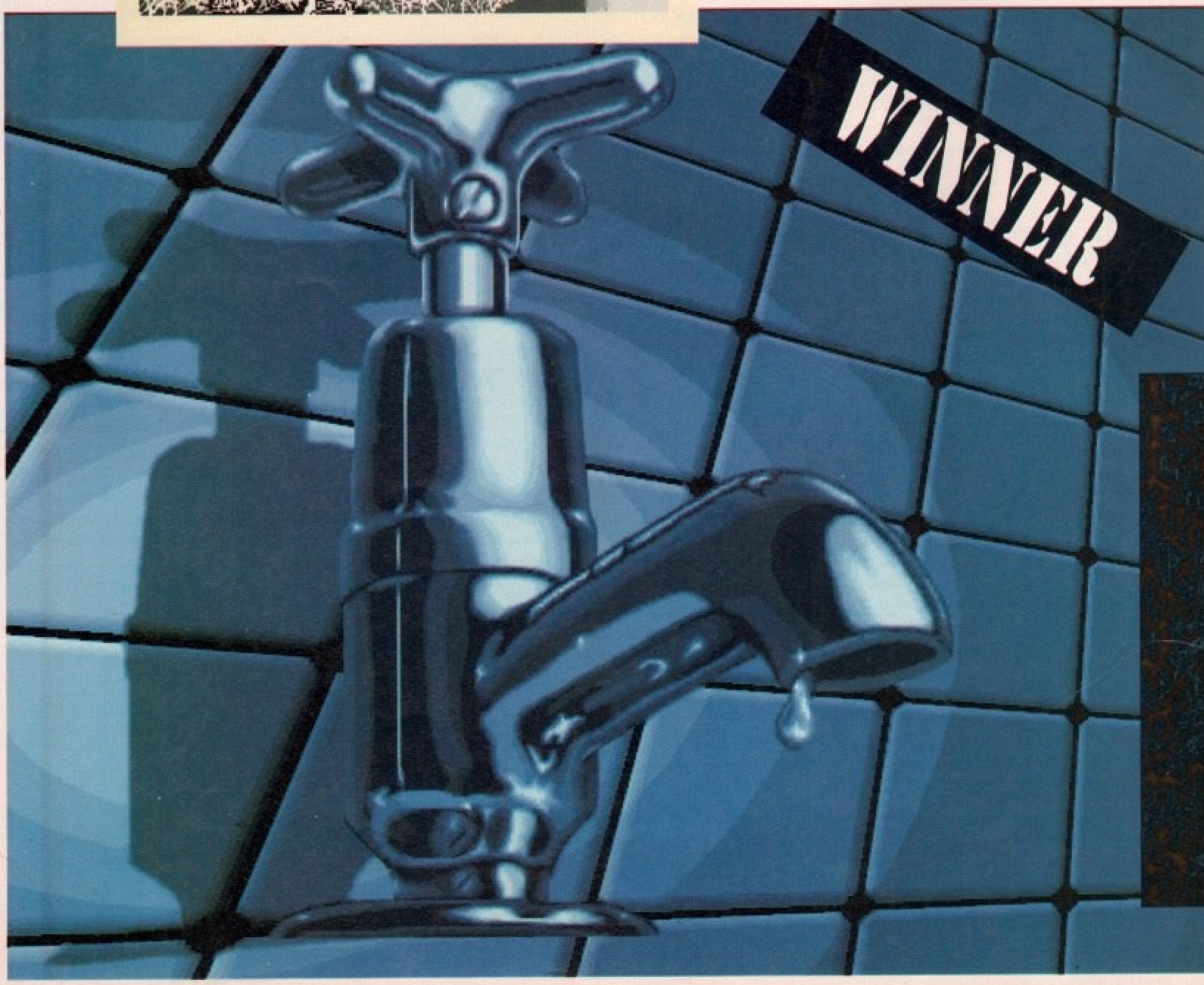
If your masterpiece is considered to be the best artistic offering of the month by our in-house panel of art critics, you'll win the ultimate artistic accolade.

Obviously we wouldn't dream of compromising your artistic principles with a mere cash incentive, so we've created a fitting alternative. There's absolutely no point in asking for cash because we'll send you the prize whether you want it or not!

The prize

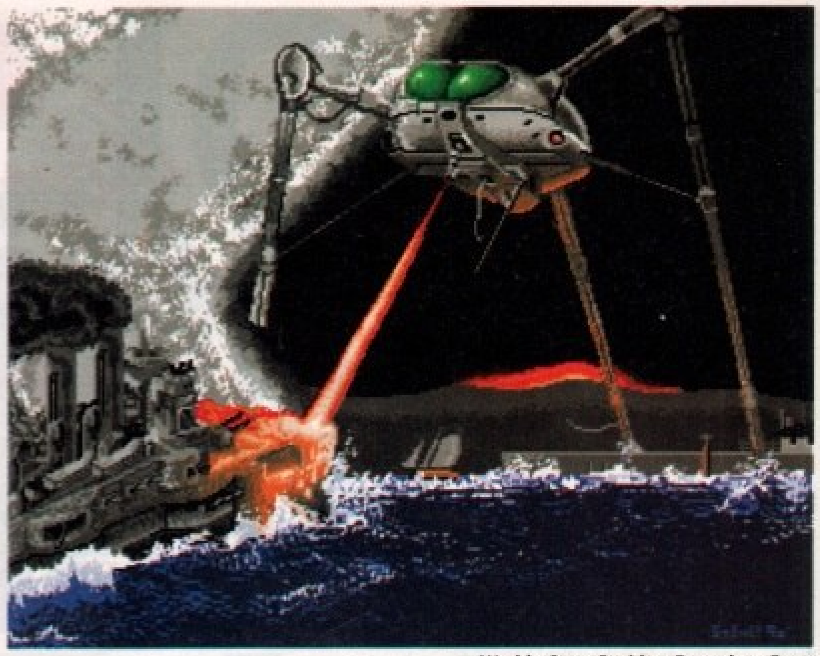
Each month the winner will receive a full colour, A4 size print quality image of their creation. This will be framed and sent post haste to the eager winner.

Each picture costs around £60 to produce and should add glamour not to mention style to any Amigan's bedroom wall.





Coke can: Graham Morrison, Ashby-de-la-zouch



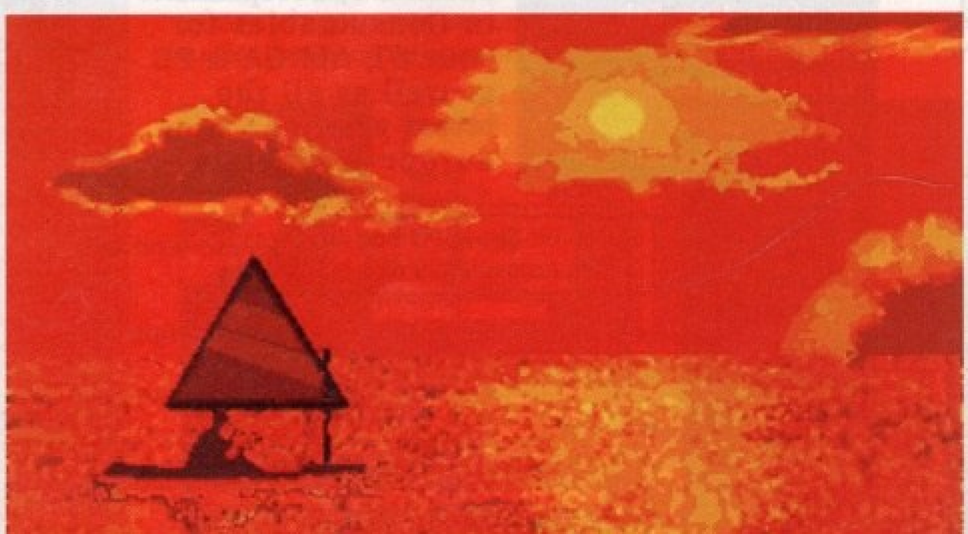
Worlds: Steve Ettridge, Dagenham Essex



Ugly: T.M. Shorten, Herne Bay, Kent.



Chrome-Tap and Einstein: T.M. Shorten, Herne Bay, Kent



Water Sky: Mark Burrows, Richmond, British Columbia

PUBLIC DOMAIN

Money isn't everything – and Paul Austin sets out to prove it!

After last month's PD extravaganza you're no doubt in the market for something special and I doubt you'll be disappointed. This month we've got a particularly strong selection of utilities and application programs so without any more ado we'll get down to business.

Flicker fixing at a fraction of the price

If you've even been mad enough to use the Amiga's Interlace mode without the benefit of a Flicker fixer you're likely to be either blind, epileptic, or barking mad, and possibly even all three.

Like many computing ideas Interlace is great in theory but in practice it's unbearable to use for any length of time. If you're working with a paint package it's almost worth the pain to produce something with the higher resolution that Interlace offers. If, however you wish to use Interlace mode with Workbench you will have to really suffer for the extra space.

If money is no object and you simply must work in Interlace you could go mad and cough up £170 for a flicker fixer and a couple of hundred notes for a VGA multisync monitor.

If you're a professional, the hardware solution is still the only real method of fixing the flicker, but it could easily cost you more than you spent on the Amiga. If you can't bring yourself to even think about spending such vast sums but nevertheless need more space on your Workbench there are two inexpensive alternatives.

MegaWB

The first is to use MegaWB which is available from almost any PD library and if you can dig out the June 90 edition of *Amiga Computing* you'll find it



Remember if you want to minimise the flicker you'll have to twiddle with preferences.

ready and waiting on our CoverDisk. This excellent utility takes a different approach to the problem of onscreen space. It provides the room by expanding the Workbench rather than increasing the screen resolution.

As a result of the expansion only a section of the Workbench screen is displayed at any one time and to examine the entire contents you simply scroll around. In effect the monitor screen becomes a window on the new larger-than-life Workbench. The screen is still in medium res so there's no flicker and of course it will only cost you the usual PD purchase price, plus a donation to the author if you become addicted.

It's not all good news as MegaWB can get mega confused as to what should be where. This results in it very occasionally jumbling up the screen image. Another disadvantage is the program's tendency to be a little bit memory hungry, so if you don't have a one meg machine you could be in a spot of trouble.

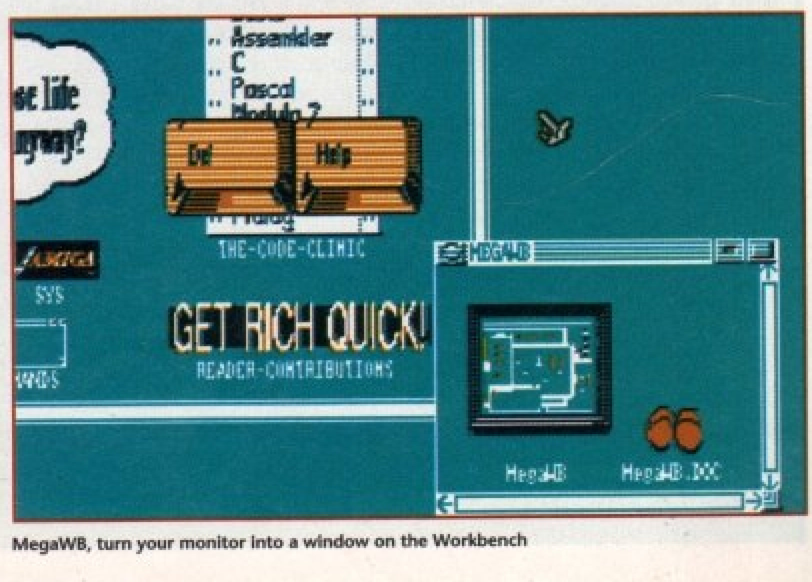
Antiflicker

Antiflicker is the only real alternative if you want use Interlace without the misery of the infamous flicker, not to mention the expense of the hardware option. It achieves this near miracle by adding a dither or anti-aliasing effect which smooths the transition between screen colours.

As a result of the smoothing effect graphics do tend to be a little fluffy around the edges but having said this, most of the people who have seen Antiflicker in action were extremely impressed by the results and this turned to astonishment when they were told of the immense saving over the hardware alternative.

Antiflicker is only a small program which can be copied into the c directory of your Workbench. As a result it can be loaded via the startup sequence. Antiflicker will not completely eradicate flicker but it will improve the Interlace situation quite dramatically.

To get the best from the system you will probably have to change your preferences in order to reduce the flicker to a minimum. The best results seem to arise from a set of preferences not far away from those found on the average ➤



MegaWB, turn your monitor into a window on the Workbench

ANOTHER BIG FISH

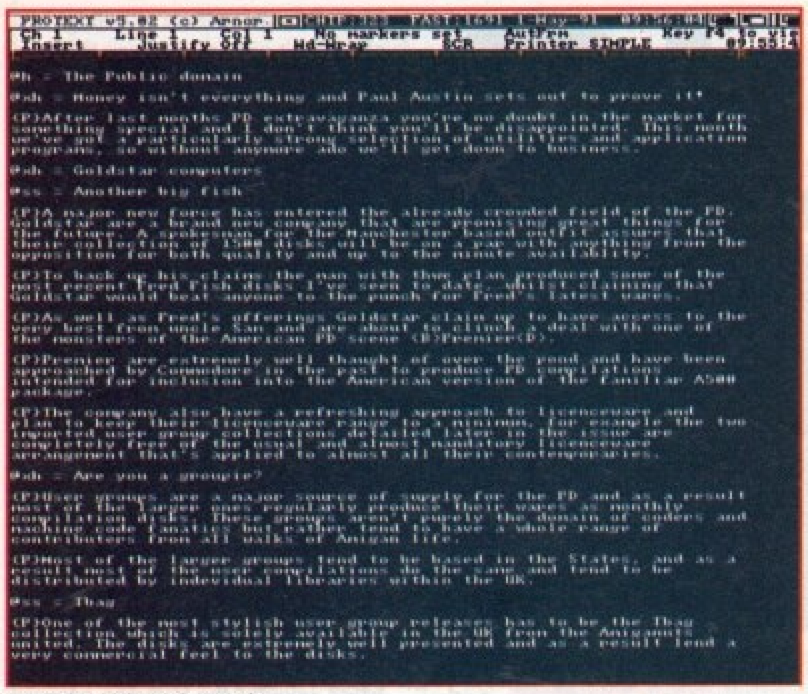
A major new force has entered the already crowded field of PD. Goldstar are a brand new company that are promising great things for the future. A spokesman for the Manchester-based outfit assures us that their collection of 1500 disks will be on a par with anything from the opposition for both quality and up to the minute availability.

To back up his claims the man with the plan produced some of the most recent Fred Fish disks, while adding that Goldstar would beat anyone to the punch for Fred's latest wares.

As well as Fred's offerings, Goldstar claim access to the very best from Uncle Sam and are about to clinch a deal with one of the monsters of the American PD scene Premier.

Premier are extremely well thought of over the pond and have been approached by Commodore in the past to produce PD compilations intended for inclusion in the American version of the familiar A500 package.

Goldstar also have a refreshing approach to licenceware. They plan to keep their licensed range to a minimum. For example, the two imported user group collections they distribute, detailed later in the issue, are completely free of the usual and almost mandatory licenceware arrangements which are imposed by almost all other libraries.



Protext in interlace what next!

Apple Mac. At this point many of the artists among you are no doubt diving for your cheque books in the belief that the answer to your prayers has arrived. Unfortunately this is not the case, Antiflicker only affects the Workbench screen, so any programs that open their own custom screen are completely unaffected by the program. This regrettably applies to Dpaint and friends.

It will however affect anything which runs under Workbench, so you could use SID in Interlace which would allow you to list even the largest directory in a single screen, or perhaps you'd prefer Protext in a larger-than-life format. The list of affected programs is quite extensive so experimentation is the key.

If you do become tempted to work full time in the new format it's a good idea to use a larger font as straining to see the now tiny Topaz will probably do you as much harm as being blinded by the original flicker.

You'll find Antiflicker on the August 90 Amigos disk which is available from Goldstar on (0942) 895320 or from Crazy Joe's on 0709 829286.

Help with hard drives

A few years back the Amiga hard drive owning community could be counted on the fingers of one hand but since the release of the slightly slow but massively successful 590 the hard drive set has blossomed into a sea of smug smiling faces all desperate to flaunt their floppylessness to the green-eyed masses.

The floppy-bound readers will be pleased to know that it isn't all plain sailing in the world of fast access. If you've got an HD you've got to look after it. This can vary from simply backing up onto countless floppies and creating partitions, to repairing damaged

Vertical

If you fancy a touch of class with your text files Miami Amigos issue 12 is a must.

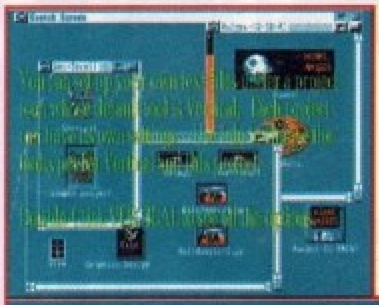
In the graphics section of the double disk set you'll find the most impressive Workbench-compatible text display system available. Vertical will display text files in a scrolling format which subtly graduates in a rainbow effect as the text scrolls up the screen.

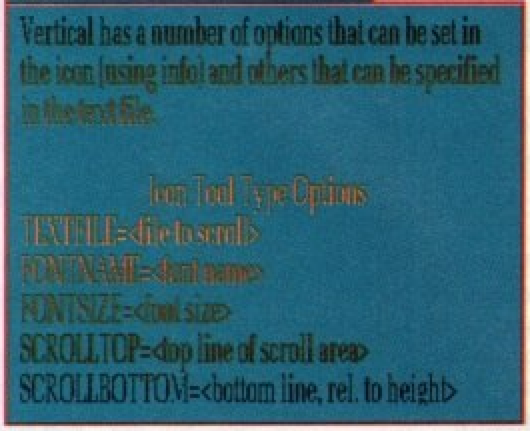
The scroll itself is a little jumpy but considering you can still open and close windows not to mention run and operate other programs as it displays it's not surprising there's an occasional stutter.

All the elements of the scroll can be defined by altering a few simple variables in the info file of the project you want to display, whether it be the fonts, spreads or colours.

If you're looking to impress, Vertical is a great way to do it and of course you also get the rest of the excellent Amigos 12 as a bonus.

As mentioned earlier you can get the Amigos releases from either Goldstar or Crazy Joe's.






Sid stretched to the ultimate size. An entire hard drive in a single list, amazing.

ARE YOU A GROUPIE?

User groups are a major source of supply for PD and as a result most of the larger ones regularly distribute their wares as monthly compilation disks. These groups aren't purely the haunt of coders, instead they tend to have a whole range of contributors from all walks of Amigan life.

Most of the larger groups tend to be based in the States, and as a result the USA is where the best user compilations tend to emerge from. These are then usually distributed as licenceware by individual libraries within the UK.

Tbag

One of the most stylish user group releases has to be the Tbag collection which is solely available in the UK from Amiganuts United. Tbag releases are always extremely well presented and as a result they tend to have a very commercial feel.

Each disk is very straightforward to use and is entirely based around the rodent. There's a good mixture of software on offer which is generally aimed at the semi serious user rather than the heavily technical. Tbags are available from Amiganuts United: Tel 0703 785680.

AUGKC

The Amiga Users Group of Kansas City can quite easily claim to be literally one of the biggest names in the business. Their disks are distributed in the UK through Comp-U-Save, again under licence.

AUCKC disks tend to lean heavily in the direction of applicational utilities. This is ideal if you need the solution to tricky computing questions such as how to file, fix and generally fiddle with your floppies. Comp-U-Save: P.O.Box 157 Hayes UB3 4SR.

Amigos

As promised earlier in the column here's a closer look at what's on offer from the latest player in the PD. Goldstar distribute two American imports. The first, and dare I say it the best, comes from the Miami Amigos. To be honest I've only seen two issues which comprised a single and double disk set. With such a limited exposure to the product it's perhaps a little early to be making comparisons but nevertheless I doubt you'll be disappointed.

The range and quality of the software should be enough to keep anyone happy. The disks have something of a middle of the road feel and should appeal to both expert and amateurs alike by offering some fairly high level applications along with more general games and utils. Goldstar Computers can be contacted on (0942) 895320.

Snag

This is the second offering in the Goldstar stable, again I've only seen two issues, both of which were in a single disk format. Snag seem to take a slightly different approach to the business by varying their releases between dedicated disks which concentrate on a specific subject such as comms, and compilations which boast a whole range of utilities, games and graphics.

Games that PD play

Without a doubt this month's PD game prize has to go yet again to the ever present Seventeen Bit.

This time they've come up with an excellent arcade compilation comprising two classics which in the dim and distant past were monsters in the eight bit world.

Rebound.... the return

The first of the two golden oldies is a version of the arcade favourite Breakout which has had more names than Lord Lucan and more versions than the average dance track.

Breakout clones are nothing new to the Amiga but in this case there is a twist in its rather familiar tail. As well as the standard game you get an option to enter an editing screen where you can compile your own levels from the game's component parts.



I did find the game had a tendency to become stuck on occasion with the ball simply bouncing back and forth over the same stretch of screen no matter how obtuse I attempted to make the angle of contact between bat and ball.

All the usual features like larger bats and sticky balls are available as bonuses and except for the occasional hitch, the gameplay is pretty good. When this is combined with the added bonus of the screen editor the game does become something of a must rather than merely a maybe.

Gridrunner

The Llama mad Jeff Minter's classic creation Gridrunner gets a well deserved airing on the Amiga and this is as good a version as you'll find in any dusty eight bit disk box.

The game, like most of Jeff's creations, is a manic masterpiece with objects flying around the screen in all directions. If, like, me you're a little too young to remember the original, it's best described as a rather complex version of Centipede.

The object, as with most of Minter's games, is merely to stay alive as the baddies descend in ever increasing numbers. As if that's not enough you also have to avoid laser beams which fire across the screen in both directions forming small exploding bombs wherever the beams collide.

As I said it's manic and ridiculously addictive. A must for any arcade fan and especially if you're a Llama loving hippy – and let's face it, who isn't?

You'll find Seventeen Bit's latest duet of arcade classics on disk number 971. You can reach them on: 0924 366982.





tracks and files, If you're a hard man, or woman, the HD utilities disk from Amiganuts United is a must.

You'll find this particular little life saver chock a block with eight separate hard drive friendly utilities which are all to be found on disk 577. You can reach the Amiganuts on: 0703 785680.

Words!

If you'd prefer to watch paint dry than play an arcade game, George Thompson Services have the thinking person's alternative to the blast' em-up. Words! is another example of the excellent compilation disk sets available from that premier PD library north of the border.

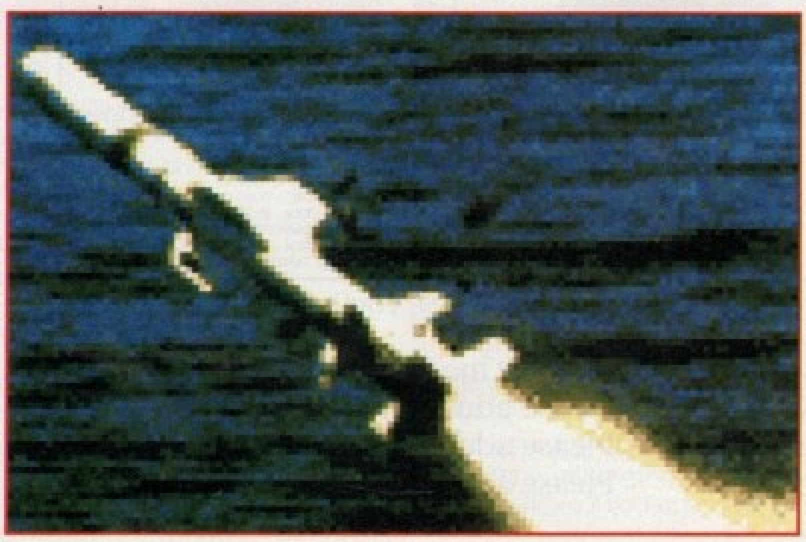
The Words! compilation comes on two disks and contains eight individual word related puzzles and perhaps more importantly a selection of problem solving utilities which any crossword fanatic will find invaluable.

Whether you want to solve a puzzle or create a new one Words! has to be the literary version of an arcade classic.

The second of the two disks contains the monsters of the collection. Scrazzle boasts a multi-level crossword clone which has a Hall of Fame and an inbuilt 20,000 word dictionary.

Disearch is the second of the two beasties and will search for the answer to any anagram or neogram, even when some of the letters are missing or alternatively when the final number of letters in the word may be unknown.

It manages this impressive feat by accessing a dictionary with 110,000 words to choose from. As well as the two main features you'll find a wide range of extra talents have been thrown in for good measure. If you're a half meg owner I'm afraid you'll be restricted to the first disk as the full one meg is required for both Scrazzle and Disearch.



Set sail with GTS's undersea simulation Sealance.

Simulations for sums

If you've been perusing the glossy flight simulation special in this month's issue, you're no doubt itching to get your hands on some high tech virtual device like the next generation fighter, with which you can fly by the seat of your armchair into the jaws of death.

It's fair to say that the PD is a little hard pressed to compete with the latest flight sim for realism and speed but the world of simulations certainly isn't all enemy Migs and bomb runs, as GTS can prove.

Simulations Volume 1 is a three disk compendium featuring a wide range of simulation programs released into the public domain. The simulated scenarios vary from flying a plane to building an empire.

The set contains a range of action

SENLAC SOFTWARE PD



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Fantasy IV
Fantasy V
Fantasy VI
Photomontage I
Photomontage II
Photomontage III
Forgotten Realms
Paradise Slides
Joe II Slideshow
Nasa Digipixs I
Nasa Digipixs II
*Disney I**
Countach Fantasy I
Countach Fantasy II
Viz Slide Show
Agatron Reflections
Sun Connection
Galams Gate
Turbo Silver Masks
Nik Williams Broadcast

GAMES

Boomerang
Flashbier
Hack
Larn
Autobahn 3000
Zerg
Casino Craps
*Moria V3.0**
Empire
Cribbage
Trainset
PC Chess
Breakout
Frantic Freddie
Eatmine
Drip!
Tricky
Card Games
Blizzard
Return To Earth
Sub Culture Level 1
Kill to Free
Games Galore I
Games Galore II
Star Trek V.1.85 (2)*
Mech Fore 3.71

DEMOS

Kefrens Mega
Coma
Red Sector (2)
Red Sector Cebit
Mental Hangover
Puggs In Space
Universal I & II
Demob I
Demob II
Vision Music
Vision Megademo IV
Vice Workbench
*Vangelis**
*Newtek (*2 ED)*
*Newtek III (*2 ED)*
Science 4.51
North Star (2)
Dexion Megademo
Highclass (UK)
Rebels Megademo
Amazing Demos VI
ESA Demos
Phenomena Megademo
Complex Bobs
Pulsifiers
Hardcrack GFX
JCS-Shellshock
Alcatraz Demo
Scoopex Demos
Triange Demos
Tetragon Megademos
Deathwarp I
Maximum Overdrive (2)
Cave Mega Demo II
Angels The Power
Amaze Final Absolutions
Crionics Total
Destruction
Animation
Horizon Sleeping Bag
Kefrens The Wall
Panic Vector Birds
Swapions Tera
Zing Art of Zing
Vertigo Fill 'em Up
Bud Brain Mega Demo I (2)
Bud Brain II

* = Requires 1 Meg
(2) = no. disks in set
(ED) = extra drive required

ANIMATION

1 MEG

Stealthy II
Walker II
Kuli (Pen)
Knight II
Rotating Ship
Shark
Gymnast
Walker I
Jet F15
Robo
Radio II
Italia Cinema
Congaman
Showbiz
Bad Bird
Billy The Kid
TV Commercials
Batman
Juggler 2

2 MEG

Vauxkiller (2)
Station at Kberne (3)
Lost In Scape (3)

1½ MEG

- At the Movies -

3+3 ½ MEG
Sentinel (2)

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AMOS PD

Note: £2 per disk. No discounts for quantity

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AMOS 22 Funschool III Demo
AMOS 31 Screen Designer
AMOS 33 Pink Goes Ape
AMOS 35 Archivist
AMOS 21 Word Square Solver
AMOS 20 Arc Angel Demo
AMOS 32 Progs/Carn/Fearn/Nadeem
AMOS 34 Luke Miller Music
AMOS 36 AMOS/RAMOS 1.2 Updates
AMOS 38 FONTS #4
AMOS 52 F.R.U.
AMOS 53 Curos/Stavros Demo 2
AMOS 54 Amos Progs 2
AMOS 59 Super Quiz
AMOS 62 Arcadia
AMOS 64 Amos Prog 3
AMOS 76 Rainbow Warrior
AMOS 77 Amos Progs 5
AMOS 81 Juke Omega Demo 1
AMOS 82 Juke Omega Demo 2
AMOS 83 Amos Paint
AMOS 84 Luke Miller Music 3
AMOS 85 Reversi/Snakes & Ladders
AMOS 97 Dynamite Dick

AMOS LICENCEWARE

Note: £3.50 per disk. No discounts for quantity

LAPD I Colouring Book
LAPD II Arc Angel Maths
LAPD IV Thingamajig (1 meg)
LAPD V Jungle Bungle
LAPD VI Pukadu/Sprites
LAPD VII Four Way Lynx (1 meg)
LAPD VIII Work & Play (1 meg)
LAPD IX Assembler
LAPD X The Word Factory
LAPD XI Go-Getter (1 meg)

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Mandle Generators
Archive Utils
ARP. 1.3 Installer
North Sea (1)
C Manual (1)
CLI Tutor
VScan + Big Brother
Chaos Strikes Back Maps

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Spread
QBase/VC
Clerk V4.0
Inventory/Memopad
Journal
Analyticalc 3D (src only)

MISCELLANY

Workbench II Look
Raytracing
Sampled Sounds
Demo Creator
Dope Intro
MCAD V1.25
Rot
Jazzbench
Celtics Demo Maker (not 1.3 Roms)
Halloween Sample (2)
*Direct Action**
Utopia Postcards
Cando Support I
Cando Support II
Fractal Flight

TREKKERS!!

All new StarTrek (2)
Startrek (3 ED)*
StarTrek V2.0 (2 ED)*
*StarTrek Fleet Manoeuvre Anim**
*StarTrek Dry Dock Anim**
*StarTrek Enterprise Reliant Anim**
*StarTrek Miscellaneous Anims**
Trektrivia
*Enterprise Approaching**
*Karns Attack**

MUSIC

Soundtrackers (2)
Soundtrackers V4.0
Future Composer
Games Music Creator
Perfect Sound
Sound Editor
Compact Disk
*Hi Fi Player**
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Instruments ST-03
Instruments ST-04
Instruments ST-05
Instruments ST-06
Instruments ST-07
Instruments ST-08
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Instruments ST-11
Instruments ST-21
Instruments ST-22
Instruments ST-92
Instruments ST-93
Instruments ST-94
Instruments ST-95
Instruments ST-96
Instruments ST-97
Instruments ST-99
Med V2.12
Soundtracker Professional
RIP Eruptions
Flashteam Music
Crusaders Freed Out
Crusaders Audio X
Crusaders Back to Base (not 1.3 Roms)
Med V.12
Sonix Play
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Pro Tracker 1.1A
Acid Mix I

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SOFTVILLE SELECTION

If the user groups have merely whetted your appetite for software, Softville could well have what you're after within perhaps the widest variety of collection material compiled under the banner of a single library.

Slipped disks

Slipped Disks are compiled in Canada and are aimed primarily at the beginners market. The selection includes simple utils and pics with a healthy spattering of Amiga basic applications thrown in for luck.

Panorama

Panorama disks are completely at the other end of the spectrum. No icons, mostly archived and heavily technical. In other words, it's serious stuff and well above the requirements of the beginner. Quite simply, if you don't enjoy the CLI you won't get much joy from the Panorama collection.

FAUG Disks

The FAUG collection take the middle ground between the simplicity of Slipped Disks and the complexity of the Panorama collection. FAUG tend to be a mixture of CLI and icon driven programs, with a few pictures, games and graphic utilities thrown in for luck.

APDC

The APDC collection is in much the same vein as the offerings from FAUG, with perhaps a slightly higher level of application software. So if you have tinkering tendencies they may be worth a look.

UGA

UGA or United Graphic Artists if you prefer, are something of a rarity in the PD world. They are one of the few home-grown European products available.

The disks originate from Holland but are compiled from all over Europe.

UGA disks are well worth a look as they tend to contain all the latest releases from Germany and Scandinavia. This area has long been a stronghold for the Amiga and as a result the public domain is good. Each disk is divided into separate dedicated sections covering the usual array of Amiga applications. UGA material does tend to be fairly specific stuff so if you're just a dabbler it might be worth looking for something slightly more general.

AMICUS

There's definitely something fishy about the AMICUS collection, at least that's the impression you'll be left with after a few minutes with the very Fred – like style that AMICUS have adopted.

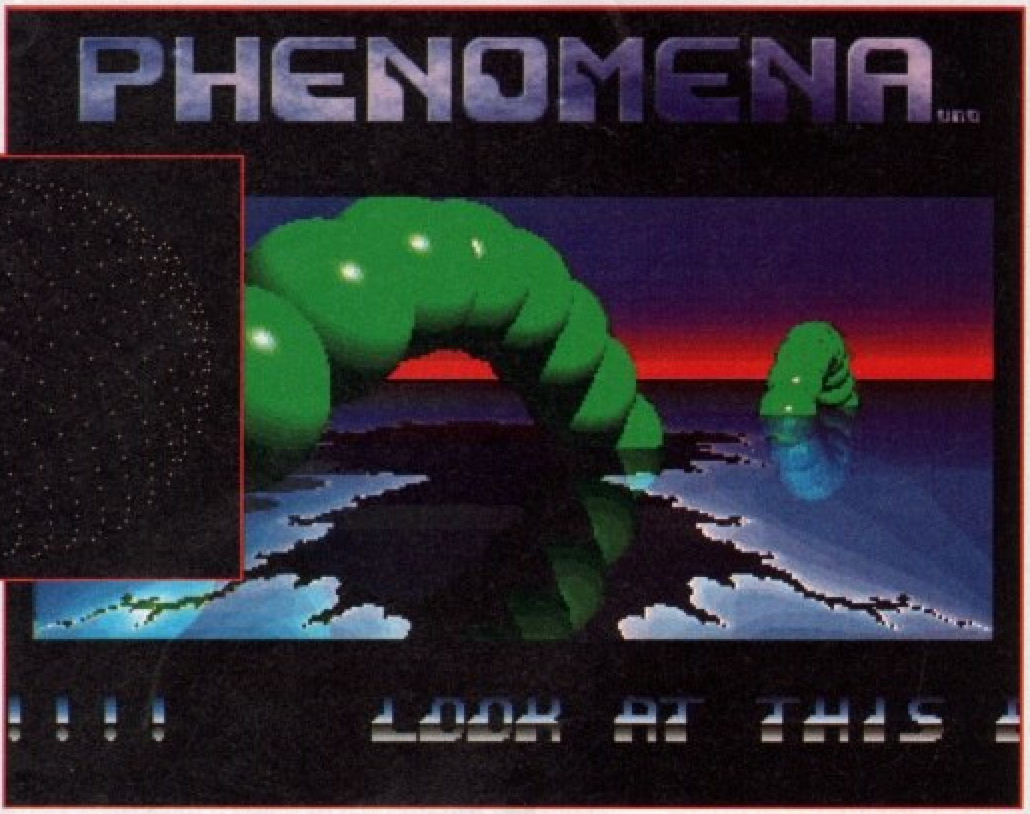
AMICUS tend to be a little more specific than the Fred Fish collection and in general are directed at a specific subject each month

If you're experimenting in PD it might be worth enquiring about the BAMI collection which comprises compilation disks made up from the best of the extensive APDC range.

➤

sims which vary from commanding a submarine to flying a DC-10. In addition to the command and control programs, there's a selection of strategic simulations which put you in control of an oil empire or perhaps pitch you against others in a battle to dominate an imaginary land.

As you might expect, a one meg machine is essential for this particular set and I doubt any of the eight available programs will run without it. If you're interested in either Word! or Simulations Vol.1 they're available solely from George Thompson Services (G.T.S.) on: 077 082 234.



Finally a demo makes it to the pages of the PD.

Demo

Finally, in a total break from tradition I'm actually going to give a demo a mention. This is the first time I've lowered my guard and let one in but there had to be an exception eventually and the Phenomina Mega Demo is certainly that.

It's still just as useless as the rest but even a miserable cynic like me couldn't fail to be impressed. By the time you read this it will no doubt be available everywhere, so if you want to rub an ST owner's nose in it one more time get a copy and start practising your favourite smug smile. Until next month have fun and stay happy....



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The compiler has a very colourful, friendly control panel

Full throttle AMOS!

As an interpreted language, AMOS is a pretty speedy mover. With the compiler around the corner Kyle Rees goes into overdrive

AMOS is probably one of the most successful Amiga products of recent times. Not only has it had massive sales, but it is supported widely through the public domain and commercial releases – most of the educational software produced for the Amiga is written in AMOS. Unfortunately, although many of the top software companies on the Continent are using this brilliant language to produce "working demos" of programs before full development has started, the lack of a compiler has been a hindrance in getting AMOS accepted by less open minded UK publishers. That mistake has now been rectified with the arrival of the AMOS Compiler.

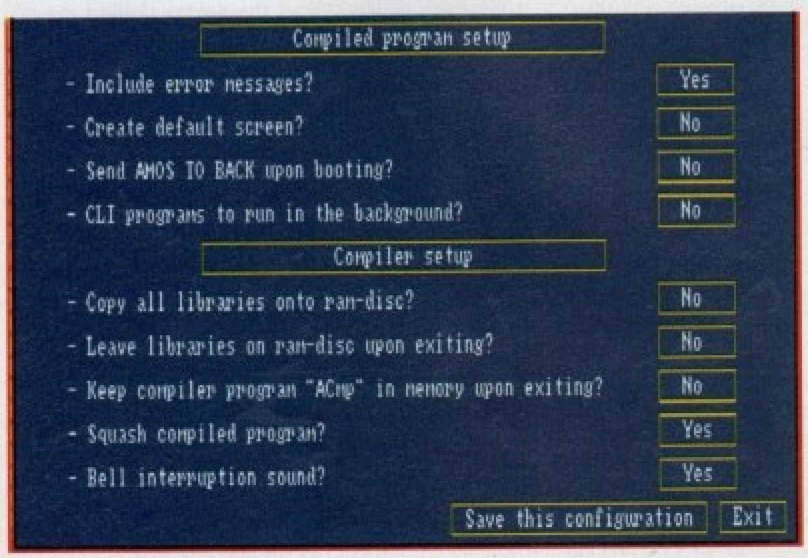
Yes, it's here at last, slightly overdue, but nevertheless most definitely here! For those of you not in the "know" a compiler is a program which turns your own creations (in this case AMOS programs) into machine code which will run independently of the AMOS editor. Sounds simple? Well amazingly it is! The compiler is so simple to use it's actually hard to find something to write about, but I've never been one to turn down a challenge so here goes.

There are actually three versions of the compiler; a CLI version (one for the techies) which takes up very little memory; a compiled version (yes it has been used to compile itself!) which runs independently of AMOS but because of the graphical front end requires a little more memory than the first; and finally a version that actually runs from inside AMOS (where is my 8 meg A3000!).

Lets compile!

The Compiler front end is surprisingly simple, in fact I think it resembles a toddler's toy with big bold buttons that even a short-sighted space alien could spot from Mars. None of this over-complicated stuff usually associated with assemblers and compilers. But don't let that fool you into thinking this product is not up to the same standard as say SAS `C' 'cos it is, just keep remembering that this Compiler has been written to allow even non-techies to get the most from it.

To compile a program you select whether you wish to compile from memory to memory, disk to disk, disk to memory or memory to disk. Obviously the fastest is the memory to memory option giving an average compilation time of about eight seconds per program (no, not eight minutes, eight SECONDS!), but for more details consult the table containing the comparison list. Unfortunately due to the rather late arrival of the product I have not had enough time to amass timings for compiling from a floppy drive, but from previous trials on a very early CLI version of the compiler you can roughly calculate the time by multiplying the hard disk timings by a factor of 10. The dramatic speed decrease is due to the dodgy Amiga floppy disks rather than the AMOS Compiler.



There is a useful preferences screen

Size does matter

Many people say size is not important, but in the world of cover disks this is not quite true. Before now, the only way to distribute AMOS programs to people who did not own a copy of AMOS was to use the RAMOS run-time system, a large cumbersome program only slightly smaller than AMOS itself. This obviously meant that the minimum sized AMOS program you could stick on a cover disk was a slightly impractical 150k. This situation has now changed. The AMOS Compiler comes with a feature new to Amiga programming languages – it actually allows you to squash your programs as they are compiled! The speed of the

routine is amazing – it's faster than both PowerPacker and Lharc and it can pack 100k down in as little as three seconds, although the compression ratio is not quite as good as Lharc.

Update

The AMOS Compiler comes with yet another update for AMOS. Version 1.3 (as the new version is called) has a better system for extending AMOS, multitasks more smoothly, and incorporates new BOB and SCREEN COPY routines which has been speeded up by about 60 per cent. It's really the old AMOS with go-faster stripes (and I mean go-faster!), which in itself can throw up problems 'cos my programs are running too fast.

Not only does it affect my programs in this way but even when I tested it on the appalling AMOSTEROIDS game, the pretty good NUMBER LEAP and the amazing MAGIC FOREST they all needed slowing down! I truly believe that you could write a commercial game in AMOS without anybody being any the wiser as to its origins. The compiler offers programming advantages other than being able to produce stand-alone code. You can also compile individual procedures and then incorporate them into your code, it is now possible to create a series of lightning fast library routines which you can sell or give to your friends without them being able to nick all of your fabo programming routines. I think this could be another godsend for cover disks.

Conclusion

So, what do I think, eh? Well, it's pretty hard to fault the AMOS Compiler – there are a couple of things though. I reckon it could have been made a little bit more optimising when generating the final object code, and I would have liked a switch in order to get rid of the flashing lines that appear on the mouse cursor when a packed program decrunches, but apart from that I think the product holds up to the AMOS ideals and standards very well. In practice with a reasonable Amiga system (1 meg plus hard drive) you can compile a 150k program, crunch it down to about 70k and then load it up all in under a minute – a feat on which I think the development team (and especially Francois Lionet) should be commended. Which brings a fitting end to this preview of the compiler and straight into a little interview I did with Francois Lionet (creator of AMOS).

Speed tests

Program name	Source size	Time	Object size	Squashed size
AMOS DEMO II	53424	14 secs	125356	73916
AMOSTEROIDS	19694	11 secs	80596	58380
SPRITE EDITOR	78182	15 secs	146944	84608
KEYBOARD DEF.	30822	12 secs	99064	66936
PLANET MATHS	97782	16 secs	172992	102684
GALLEONS	49702	12 secs	112460	68864

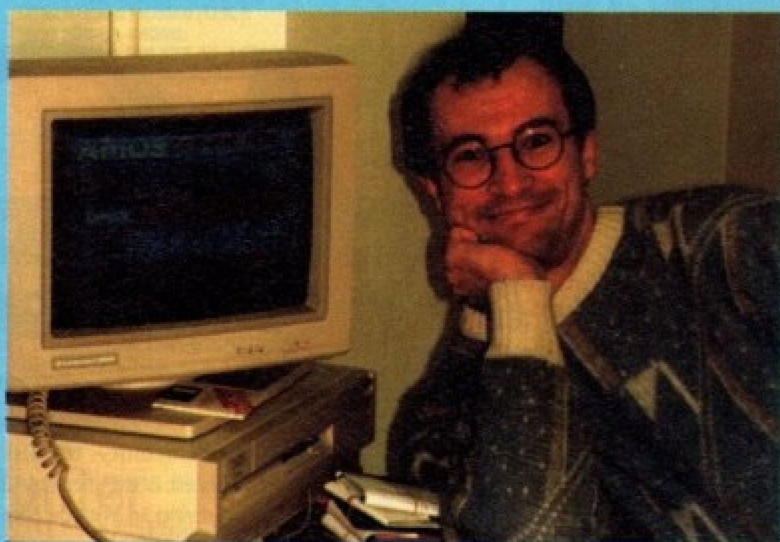
All timings were taken on an A2000 with 1 meg chip ram + 2 megs fast.

All compiler libraries, source code and object code were stored on an internal 40 meg hard disk.

Planet Maths can be found on Fun School 3 (written by Pete Hickman!)

Galleons is a Licenceware game available from the Official AMOS PD Library (0942 495 261).

AMOS – The creator!



To call Francois Lionet busy would be something of an understatement. I caught the man behind AMOS as he tried, hopelessly, to eat his lunch in peace.

KR: What do you think of the programs currently being produced with AMOS?

FL: I thinks it's brilliant, some of the programs are really great! I've also seen some CDTV things which are really amazing.

KR: Can you tell me about them?

FL: Well, a French guy and a couple of Americans are working with the CDTV using AMOS because it's really designed to do that. But I cannot really tell you about the products. I was really amazed to see over 190 disks in the Official AMOS PD Library.

KR: Fantastic isn't it.

FL: Well, you open a computer magazine and all you see is AMOS PD, AMOS PD, AMOS PD.

KR: Have you seen the latest version of MED (3.00), the one with synthetic instruments?

FL: Yes, I must do this for AMOS, when I come back from my holiday.

KR: What about future AMOS developments?

FL: I definitely want to do the new music extension, and then I don't know.....

KR: You want some suggestions?

FL: Yeah, let's have some.
(write to Mandarin)

KR: What do you think of AMOS 3D?

FL: I love the editor, and I feel it will revolutionise the world of 3D.

KR: What do you think of the success of Fun School 3 and are you looking forward to seeing more products topping the charts that were written using AMOS?

FL: Yes, there is a problem. When you tell people it is written in AMOS they say "arrgghhhh yuk".

KR: Do you think people and companies will take AMOS more seriously now?

FL: With the compiler? Yes! There will be a big wave of AMOS programs appearing.

KR: Have you been playing any games recently?

FL: Only Super Mario Bros. on my GameBoy. Nothing on the Amiga. I think the market is splitting into two sections, games for consoles and games for computers, with more and more programmers moving over to consoles.

KR: Would you like to write a console product?

FL: Oh yes, its sells by zillions with no piracy. The future is very open but I would like to write a game, I am a little fed up with languages.

KR: What differences are there between AMOS 1.2 and 1.3?

FL: Obviously 1.3 is designed to handle the compiler, but it also respects Commodore's rigid specifications for software so it should run on all future Amigas. The new version also allows you to have multiple copies of AMOS loaded at one time, if you have enough memory.

KR: Can you switch between them?

FL: No, when you load another version of AMOS it sends a signal to the previous versions which then freeze until you exit from each version.

KR: What does the future hold for AMOS?

FL: Well, it is just appearing in French and there are German and American versions coming.

KR: Do you think AMOS has a bright future in the U.S.?

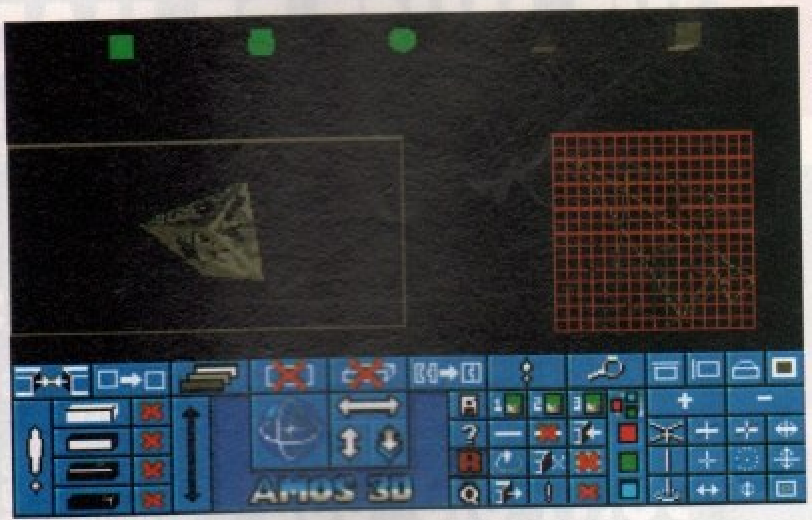
FL: Yeah, well if there is no more problem with NTSC (chuckle). I think it approaches the American mind of programming, the Americans loved the Atari 800, it's a very tricky machine but AMOS and the Amiga remind me of that machine.

KR: What are you doing with your life in general?

FL: Well, I have finished the compiler, and when I am programming I just do programming until something is finished. I am really boring.

KR: I have always said that computer Programmers were put on the Earth to make accountants look interesting (laugh). Oh well, I think that's all we have time for Francois, I think Richard wants you to get back to programming.

Thanks for the brief interview.



AMOS 3D: "...a bit like standing on the bridge of the Starship Enterprise and looking at the viewscreen."

Into a new dimension with AMOS

It has been two years in the making but AMOS 3D is almost with us. As Kyle Rees finds out, it looks like it has been worth the wait

For nearly two years now Mandarin Software has had an exciting project "under construction". Fuelled by the overwhelming need to improve their STOS computer language for the Atari ST they commissioned STOS 3D, an extension to the language which would allow you to manipulate solid objects with the ease of sprites.

Of course this all happened long before the industry got in a tizzy about Virtual Reality, but Mandarin's timing seems to be perfect for it is now almost ready for release.

While the extension was being written for STOS a new language for the Amiga was born – AMOS – and as the natural successor to the STOS empire (I can see all those ST owners rushing out and buying Amigas!) AMOS 3D became reality.

AMOS 3D is not just an extension for AMOS – it comes with an amazing 3D Object Modeller which forms the kingpin of the system. I was fortunate enough to secure a pre-release copy of this program in order to give the readers of *Amiga Computing* an exclusive look into the future of programming...

Lego land

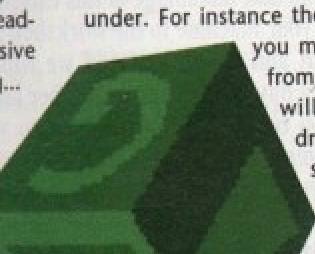
The very nature of 3D makes designing objects quite a daunting task. How would you construct a car, TV set, or intergalatic iguana? The Object Modeller is a stand-alone program (incidentally this was written in `C') which approaches the problem by providing the user with a basic set of building blocks consisting of geometric shapes and flat surfaces. All the user then does is stretch, rotate, resize and eventually glue the objects together. In many respects it's a bit like 3D Lego.



The OM program actually lets you select any flat surface, line or point on an object ready for manipulation. You can then move that surface/line/point in relation to the rest of the object. I know this sounds a little complicated but it's very powerful and fantastic fun.

In fact using the tools to change the shape of an object can result in very weird effects. Things that you would usually see in surrealist paintings start to take over your computer screen. Perhaps AMOS 3D could be the next major artform the world has been waiting for!?!

It all sounds pretty simple until you start to consider the limitations you are under. For instance the more blocks you make an object from, the longer it will take to be drawn (which is still very quick). The 3D system used requires the programmer to rethink things a little. When using sprites or bobs you only have to think in terms of moving the object up/down and across the screen – now you can move things in/out of the screen!



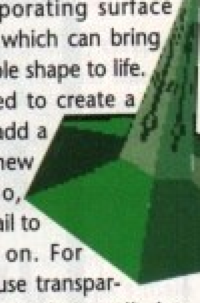
The final frontier

It's quite daunting at first, but as my old friend Peter Hickman explained to me: "Looking at AMOS 3D through your monitor is a bit like standing on the bridge of the Starship Enterprise and looking at the viewscreen. You literally have an entire universe inside your Amiga and you are looking into it. A 3D object can be positioned anywhere in that universe, in front of you, behind you, even so far away it seems to disappear.

"Of course using the commands provided in AMOS 3D you can move around this 3D universe so if an object did go out of view you could either move it back or follow it!! This obviously opens up tremendous potential for people to write their own versions of games like Elite, Starglider II, FOFT, Xiphos etc."



One of the main criticisms of many 3D games is that the objects look very stark, rigid and contrived. AMOS 3D makes a grand effort to get round this problem by incorporating surface detail onto objects which can bring even the most terrible shape to life. Imagine you wanted to create a house. Would you add a door by gluing a new object onto it? No, you use surface detail to "paint" the door on. For windows you can use transparent surface detail which actually lets you look inside (or see through) an object. Now isn't that amazing?



Conclusion

So how simple is it to use? Well I started to design a WW1 style bi-plane which seemed pretty simple at first, but unfortunately as my 3D skills are not not up to much the finished object looked like it had appeared on "Those Magnficent Men In Their Flying Machines" rather than at an air show.

Obviously this whole 3D thing is going to take a lot of getting used to, but if the finished product is as slick and professional as this preview copy I can't wait!! Mandarin are even suggesting that disks full of ready made 3D objects may put in an appearence soon after the release, and perhaps even some PD disks containing objects. The future sounds good.

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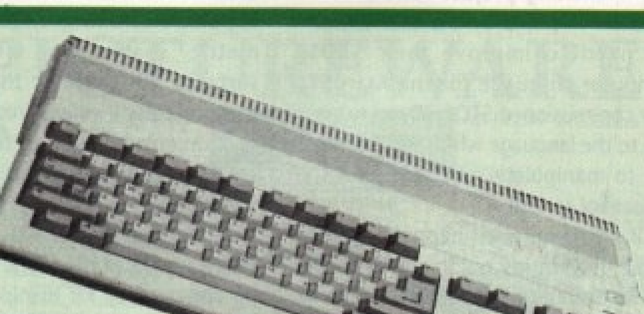
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AMC



Cracking the Shell

Stevie Kennedy looks at CLI and Shell and concludes with vive la difference!

How many of you have been following our CLI tutorials using a copy of the Workbench disk? It's a fair bet that most users of Workbench 1.3 or above have been doing just that and hardly, if ever, noticed whether they are using Shell or CLI.

To most users, the differences between Shell and CLI are either too mysterious for their needs or too trivial to bother with. Neither of these should be the case, however, as the Shell is an extremely useful replacement for the old CLI and can make life a great deal easier for anyone who intends to use AmigaDOS.

The Shell was introduced in Workbench 1.3 as a more flexible command line interpreter along with a number of features and powerful AmigaDOS commands, shoving CLI into the system drawer and replacing it in the Workbench disk's main window. For this reason, most recent Amiga owners may never have used CLI.

With its increased power and flexibility, however, came the Shell's own overheads. It is at the same time more space-consuming, and much more complicated to set up than CLI, and is thus a rare sight on compilation disks, PD disks, and coverdisks. The first thing to do, then, is to take the mystery out of setting up a Shell.

Shell Set-up

The first step towards a functioning Shell is a couple of lines in your startup sequence:

```
RESIDENT CLI L:SHELL-SEG SYSTEM PURE ADD
MOUNT NEWCON:
```

You don't particularly have to understand these lines, just make sure that they're in the startup sequence of the disk on which you're trying to set up the Shell.

The first line makes the Shell-Seg program resident in the System list under the name CLI, and the second MOUNTs the NEWCON: device. Both lines make certain files necessary for a Shell to exist.

First of all, you will need the RESIDENT and MOUNT commands in the C: directory of the intended disk. These will be on your Workbench 1.3 disk and should be transferred to the new system disk using the COPY command.

Next, you will need an L: directory containing the Shell-Seg file. This file in effect *is* the Shell, and by virtue of being made resident with the name CLI, it is the routine which will be called every time CLI is accessed. For Shell to work, you will also need the Newcon-Handler file in the L: directory and a mountlist in the DEVS: directory containing an entry for NEWCON: This is because when the MOUNT command is executed it always looks for a corresponding entry in the mountlist, which should look something like

```
        NEWCON:
HANDLER = L:NEWCON-HANDLER
PRIORITY = 5
STACKSIZE = 1000
#
```

The NEWCON:HANDLER is the file which gives the Shell its more user-friendly window, as discussed later in this tutorial.

The icon

Once your startup-sequence, complete with its Shell-specific lines, has taken its course and the Workbench screen has popped up smilingly before you, you will need a Shell icon to click on. Unfortunately, you can't use just any old icon.

To illustrate, click once on the Shell icon in your Workbench disk's main window, then pull down and highlight the INFO function. A panel will appear containing the information contained within the icon file, without which nothing would happen when you double-clicked it.

The 'default tool type' is the tool which the Amiga will look for when the icon is double clicked. If this is empty, it will look for a file called the same as the icon itself.

However, you'll probably have noticed that there isn't actually a file called 'Shell' anywhere on the Workbench disk!

The default tool type should be set to SYS:SYSTEM/CLI, which means that when this icon is double clicked, the Amiga looks to load up a tool called CLI from the system directory of the disk you booted from.

As the Shell-Seg file has already been made resident in the system part of the resident commands list under the name ➤

Shell editor hot-keys

Apart from the delete and backspace keys, whose functions are self-explanatory, Shell command lines can be edited thus:

Cursor Up-Arrow	Brings up the last command line entered
Cursor Down-Arrow	Brings up the next most recent command line
CTRL-X	Deletes the entire current line
CTRL-K	Deletes forwards from cursor to end of line
CTRL-U	Deletes backwards from cursor to start of line
CTRL-A	Moves cursor to start of line
CTRL-Z	Moves cursor to end of line

There is also a special 'search' option. By typing a command, such as LIST, then pressing CTRL-R or Shift-Up-Arrow, you can jump back to the last use of that command.

Shell construction kit

Here is a list of the files you will need to set up a Shell, along with the directories in which they are located.

File	Directory	File	Directory
Shell-Seg	L:	RESIDENT	C:
Newcon-Handler	L:	ALIAS	C:
Shell-Startup	S:	MOUNT	C:
(resident CLI)	SYS:SYSTEM	Mountlist	DEVS:
PROMPT	C:	Shell.info (icon)	SYS:

"The upgrade the average user will find most useful, whether he or she decides to mess about with Shell-Startups or not, is the vastly improved command line itself"

CLI, the icon runs this program instead. If you're confused by any of this, don't worry. By copying this icon from your Workbench disk to any disk on which it's needed, you should be able to set up as many Shells as you need without ever changing the default tool types.

The standard Shell icon already has all its tool types set up.

One thing you might want to mess about with is the tool type which defines the window opened by the shell icon. The WINDOW tool type allows the user to define the size and position of the window and what message appears on the strip at the top. For example try changing your tool type to

```
WINDOW=NEWCON:0/156/640/100/*** Hello
Chum! ***
```

and your Shell window will open in a convenient position with a cheerful message every time.

Shell-Startup

One of the first things Shell does as it loads up is to look in the S: directory for a file called Shell Startup which normally contains information on the PROMPT. If found, this file is executed in much the same way as the main startup-sequence. If no such file exists, Shell loads up with the default prompt.

Shell-Startup is the best place to go if you want to customise the Shell environment.

From here you would normally use the PROMPT command to open up with something other than the standard prompt, such as one which displays the full directory path.

The default prompt will simply show the number of the current Shell process and an arrow. To display the current directory, impossible under CLI, use the line

```
PROMPT %S>
```

and to include the number of the Shell process, the full standard Shell prompt becomes

```
PROMPT %N.%S>
```

Note the use of a full stop to separate the directory from the process number.

ALIAS and RESIDENT

Further tricks, however, are possible with the Shell-Startup, and it is at this point that the ALIAS and RESIDENT commands come into their own.

By the judicious use of these commands, the user can tailor his or her Shell to suit particular preferences for commands.

For example, if you intend to make heavy use of the EXECUTE command, your Shell-Startup should include the line

```
ALIAS EX EXECUTE
```

or you could replace strings with short aliases such as

```
ALIAS EDS "ED S:STARTUP-SEQUENCE"
```

which greatly speed up common operations.

You can even use square brackets within the ALIAS string so that when you type the alias you can supply your own 'parameter'.

For example, if you use the Lharc archiver and are sick of typing the full commands with all the gubbins every time you unarc a download, all you need do is insert in your Shell-Startup a line saying something like

```
ALIAS EXTRACT LHARC E,X [] RAM:
```

You'd then only have to type EXTRACT filename to start the unarchiving process. The ALIAS substitutes the chosen filename in place of the square brackets.

It would also be advantageous to make resident those commands which are going to be used most in whatever your most common AmigaDOS uses are. When a command is made resident, it becomes instantly available to Shell or CLI and saves the time normally spent accessing the system disk in search of the command.

Users should make as great a use of this facility as possible, as it is one of the most useful of the extra features offered by Workbench 1.3 and Shell.

The StartupII file in your Workbench 1.3 disk's S: directory already makes a number of commands resident, so if you are using a copy of this disk, check to see which commands are resident by typing RESIDENT <RETURN>.

If you have mounted a Shell, you can type RESIDENT SYSTEM <RETURN> to show the commands resident under the system list, which should include CLI, the name under which Shell-Seg was made resident.

Erudite editor

Finally, the upgrade the average user will find most immediately useful, whether he or she decides to mess about with Shell-Startups or not, is the vastly improved command line itself.

The Shell has a 'memory' of which commands have been typed in during the present window's history. This means that if you type a long command line with one simple mistake in the spelling or syntax, you can just press the up-arrow cursor key to recall the last command.

Editing it to correct any mistakes is then easy.

In the same way, the down-arrow cursor key can be used to flick forward through a sequence of commands, and can utilise several hot-key combinations, such as CTRL-X to delete an entire command line.

Next month

In an attempt to dispel some common confusions, we'll cover printers, printer drivers, and how to use them through AmigaDOS.

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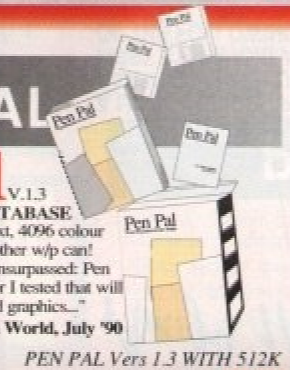
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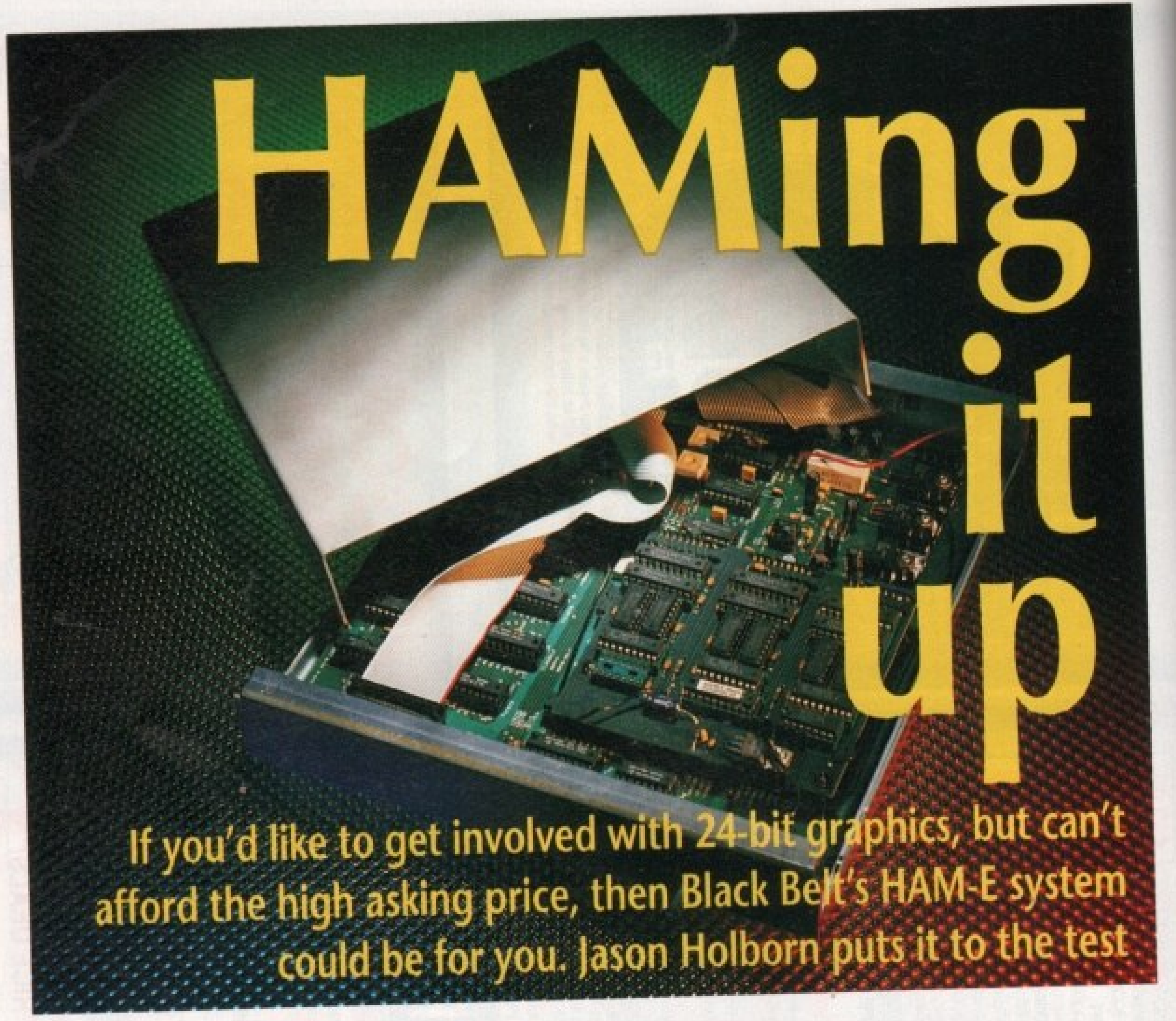
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HAMing it up

If you'd like to get involved with 24-bit graphics, but can't afford the high asking price, then Black Belt's HAM-E system could be for you. Jason Holborn puts it to the test

In the space of little more than a couple of months, the Amiga's graphics capabilities have catapulted forward, bringing it in line with the machines at the leading edge of personal computer graphics. Now, with devices like the Harlequin board and Mimetics frame buffer selling for just under £2000, your Amiga can hold its head up high with such industry hard hitters as Apple, Sun and Apollo.

Good news for the pros, but what about the rest of us? If, like me, you had to sell your granny into slavery just to buy the Amiga in the first place (well, sacrifices had to be made!), then you're probably not going to rush to the phone – Visa card in hand – to order one of these silicon beauties.

This then, is where Black Belt System's HAM-E comes in. Badged as the 'colour display device for the rest of us', HAM-E promises to deliver near photographic images at a price that even your Bank Manager would grudgingly approve of. Most similar devices would set you back at least £1400, but HAM-E can be yours for just £300. Have Black Belt come up with the answer to every Amiga artist's dreams? They certainly seem to think so.

Box clever

Unlike most 24-bit graphic devices, HAM-E actually lives in its own little box that connects externally to the Amiga via the RGB connector. As a result, it can be used on just about any Amiga, ranging from a basic 512k Amiga A500 to a full blown 16 Mbyte A3000. And, because the Amiga's RGB connector is about the only thing on the Amiga that hasn't changed during its five years of existence, A1000 users can also get in on the act.

The hardware itself comes to you in a rather dull cream metal box about the size of an average modem (that is, assuming you know how large a modem is!). For such a seemingly revolutionary device, it's surprising how boring the box is – there's nothing in the way of fancy designer graphics or even a little name plate to let the inquisitive know what your new box of tricks is. Even around the back, the three connectors aren't labelled, so you're forced to read the manual to find out how to plug the thing in. Oh well, looks like you'll have to read the manual after all (what a hardship, eh!).

As mentioned earlier, HAM-E sits between the Amiga and an Amiga RGB monitor, although it should also be theoretically possible to use it in conjunction with a TV by plugging the TV modulator into the HAM-E box. I didn't get a chance to test this out, so you may be well advised to check with Checkmate before taking the plunge. That said, I can't see any real reason why it shouldn't work, although you're unlikely to get the full effect from a TV.

Before you can start using your HAM-E, it must first be set up to work with your own particular system. Due to signal level differences between different revisions of the Amiga's Agnus and Denise custom chips, the HAM-E hardware won't work properly until it has been literally 'tuned in' to your system. If you try using it without making the necessary modifications, all you'll get is a fuzzy mess on your monitor screen. However, once the job is done you'll never have to do it again (unless you try using it on another Amiga, of course!).

If all this talk of 'tuning in' hardware has already reduced you to a cold sweat, don't worry – it's not as bad as it sounds. Infact, it's actually a fairly straightforward procedure that can be carried out by just about anyone armed with a phillips screwdriver and a couple of brain cells (oh well, that counts me out!). All you have to do is to open up the HAM-E casing and locate a little blue pot. Once you've found it, you must then load up the test image supplied on the HAM-E program disk and adjust the pot until the on-screen image is stable and colour correct.

There are also a couple of extra factory-aligned pots that must not be adjusted – if you do, then you're liable to screw up your HAM-E completely, so leave 'em alone! Once all this fiddling about has been completed, you're ready to enter the world of 24-bit graphics!

The 24th Bit

The first thing that must be stressed is that although HAM-E is a 24-bit device, this only refers to its colour palette. You

High res

If you've got an extra £100 to spare, you can buy an enhanced version of the HAM-E hardware that comes complete with an impressive bit of extra circuitry which Black Belt call their 'Anti-Alias Machine'. Put simply, this gadget effectively doubles the resolution of any HAM-E images by smoothing out the jaggies within an image at a video signal level. This basically means that although the images seem to have extra pixels, they are not real in the sense that they can be edited by the Amiga – indeed, as far as the Amiga is concerned, it is still displaying a normal 4-bitplane medium resolution (or high resolution) image.



Look at all those flesh tones!

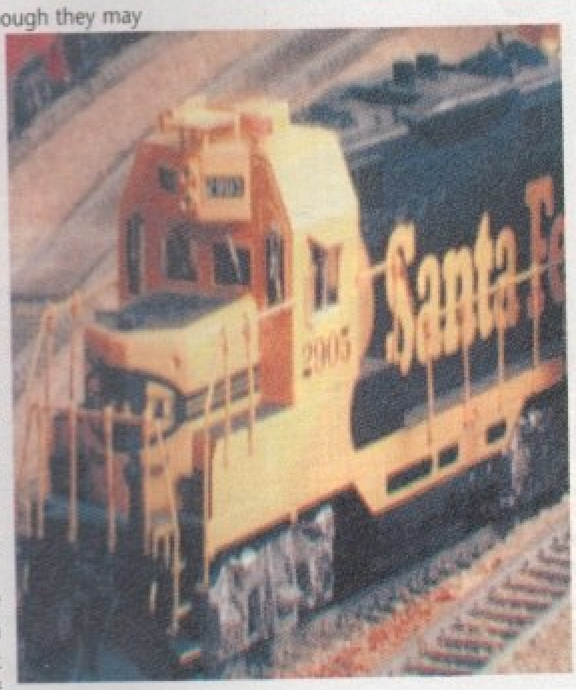


Just for comparison, here's a HAM-E image....

cannot, as is the case with Harlequin, display an image with 24-bitplanes of colour information, so images of the quality you'd expect from a professional frame buffer are out of the window for a start.

What HAM-E does give you are three new screen modes – a 256 colour mode, a 512 colour mode and, most visually impressive of all, an extended HAM mode that will display a maximum of 262,000 colours on screen at once. And all this on a standard Amiga monitor!

The first two modes are referred to as 'Register' modes. Although they may sound rather limited when compared to the Amiga's current HAM mode (which can display 4096 colours at once), neither suffers from the problems associated with HAM (HAM fringing and bleeding, for example). The other major advantage of these two 'reg' modes is that their colour palettes can be picked from a maximum of 16.2 million colours, so there's no shortage of shades.



They really come into their own when displaying pictures that have a limited range of different colours, but heavily on shading – digitised flesh tones, for example. When you first view a HAM-E image, it's quite hard to spot any real differences between it and a good HAM image. But, try converting the image to HAM mode (I used ASDG's Art Department Professional) and the difference will be more than evident. With all those extra shades available, HAM-E images offer a much smoother transition between colours, creating almost photographic shading effects.

Extended HAM mode works in basically the same way as normal HAM mode, but there are an extra 2 bitplanes for HAM-E to work with. As a result, Extended HAM mode can display a lot more than the usual 256 (or 512) colours – 262,000 colours, to be precise. As you can probably already appreciate, images displayed in this mode are quite simply breathtaking.

HAM-E: how it works

As already mentioned, the HAM-E hardware doesn't directly interface with the Amiga's hardware. Instead, it works with the video signal output by the Amiga's RGB connector, so the Amiga doesn't actually know that it is displaying images of the quality that HAM-E produces.

When you open a low resolution HAM-E image, the Amiga is actually displaying a 4-bitplane medium resolution image. Not until the video signal is passed to the HAM-E hardware is it converted into the image that you see on your Amiga screen.

The HAM-E hardware differentiates between a 'real' medium resolution screen (like the Workbench) and a HAM-E screen by looking for 16 pixel code which Black Belt call the 'Magic Cookie'. When you convert an image to HAM-E format, the conversion software automatically places this 'cookie' into the file, so most of this is completely transparent to the user.

If you try to display a HAM-E image without the HAM-E hardware, all you will see is a rather messy medium resolution image. The reason why a medium resolution screen is used is because HAM-E works by actually doubling up two medium resolution pixels, treating the four bits of each as one single 8-bit pixel. In effect, you've now got an 8-bitplane screen. Clever eh!

Image compatibility

Although the HAM-E hardware comes complete with paint software (more on this later), it doesn't really come into its own until it is used in conjunction with either a decent video digitiser (Black Belt recommend NewTek's DigiView) or a ray tracing package. Obviously most of the packages currently available don't directly support HAM-E format images, so their images must first be converted to HAM-E format before they can be displayed in all their glory.

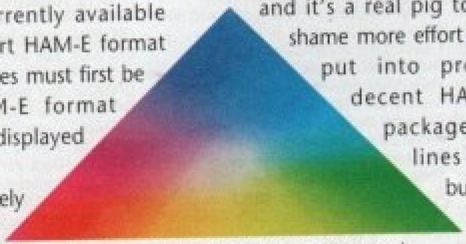
Black Belt have wisely included a powerful 'convert' program that, as that name suggests, will allow you to convert images in a variety of different formats to HAM-E format. The current release can handle images in Turbo Silver 'Impulse' format, Sculpt RAW, NewTek's Dynamic HiRes, SHAM, 24 IFF with CLUT chunks (produced by the Art Department), Targa, GIF, 18-bit ScanLab and a few more besides. These are all converted to Commodore-standard 24-bit IFF files.

A second tool, IP (Image Professional), will then allow you to import this 24-bit IFF file and convert it to HAM-E format. A complicated process, I'm sure you'll agree, but the results are more than worth it.

IP is a pretty stonking image processing program in its own right (although it didn't seem to like my ECS-quipped Amiga, for some unknown reason), but for best results you really do need to get your hands on ASDG's Art Department Professional (see review in last months issue). With the Art Department, you can directly load and edit images in a variety of formats including HAM-E, but with the kind of speed and power that IP could never hope to match.

Sounds fine so far, but there's one big problem – both Convert and IP do require an awful lot of memory to run. And I mean a lot of memory. Because of the sheer size of 24-bit graphic files, you're really going to need at least a couple of megabytes to do anything useful (3 Mbytes would do the job). Of course, this does depend heavily upon the format of your source image, but even a low resolution 24-bit image will swallow up large gobs of RAM.

Finally, there's the paint software. Problem is though, DPaint it most certainly isn't – to call it creaky would be paying it a compliment. Sure, it's got all the usual painting functions you'd expect, but the user interface is dire and it's a real pig to use. It's a shame more effort hasn't been put into producing a decent HAM-E paint package along the lines of DPaint, but then Black Belt do stress that what they do provide is free, so it would be unfair to slag off HAM-E because of it. However, if you're feeling a bit adventurous, Black Belt will actually supply you with the source code to their paint package free of charge, therefore allowing you to produce your own HAM-E applications. Let's just hope someone does take up the challenge.



This Extended HAM image shows the spread of colours available - just think, for every 1 Amiga colour, HAM-E provides almost 4000 shades in between!

Conclusion

Harlequin it may not be, but HAM-E is still a damned impressive piece of kit. If Checkmate handle it right, I can see HAM-E becoming a 'must-have' device for anyone even remotely interested in tinkering with graphics. It's particularly useful for ray tracing – with all those shades available, your ray traced images will have never looked better. It's a shame the paint software wasn't up to the same standard as the hardware, but then it is a freebee so you can hardly complain – Let's just hope some enterprising programmer comes up with an alternative.

We'd all like to own a 'true' 24-bit graphics card like the Harlequin, but HAM-E is probably about as close as most of us will ever get. That's not to say it's a poor substitute, however. Far from it. For the price, HAM-E is an absolute bargain that anyone interested in computer graphics cannot afford to pass up. I for one will be placing an order – and there's no better recommendation than that!

HAM-E
£299 (basic) or
£399 (with Anti-Alias machine)

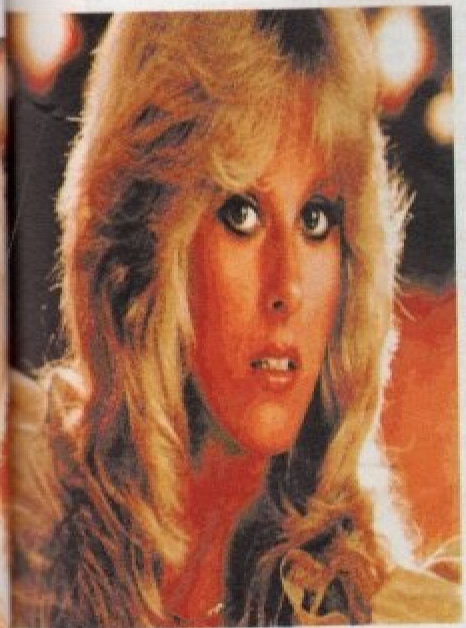
Checkmate Digital Ltd
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Tel: 071 923 0658

Ease of use

Implementation

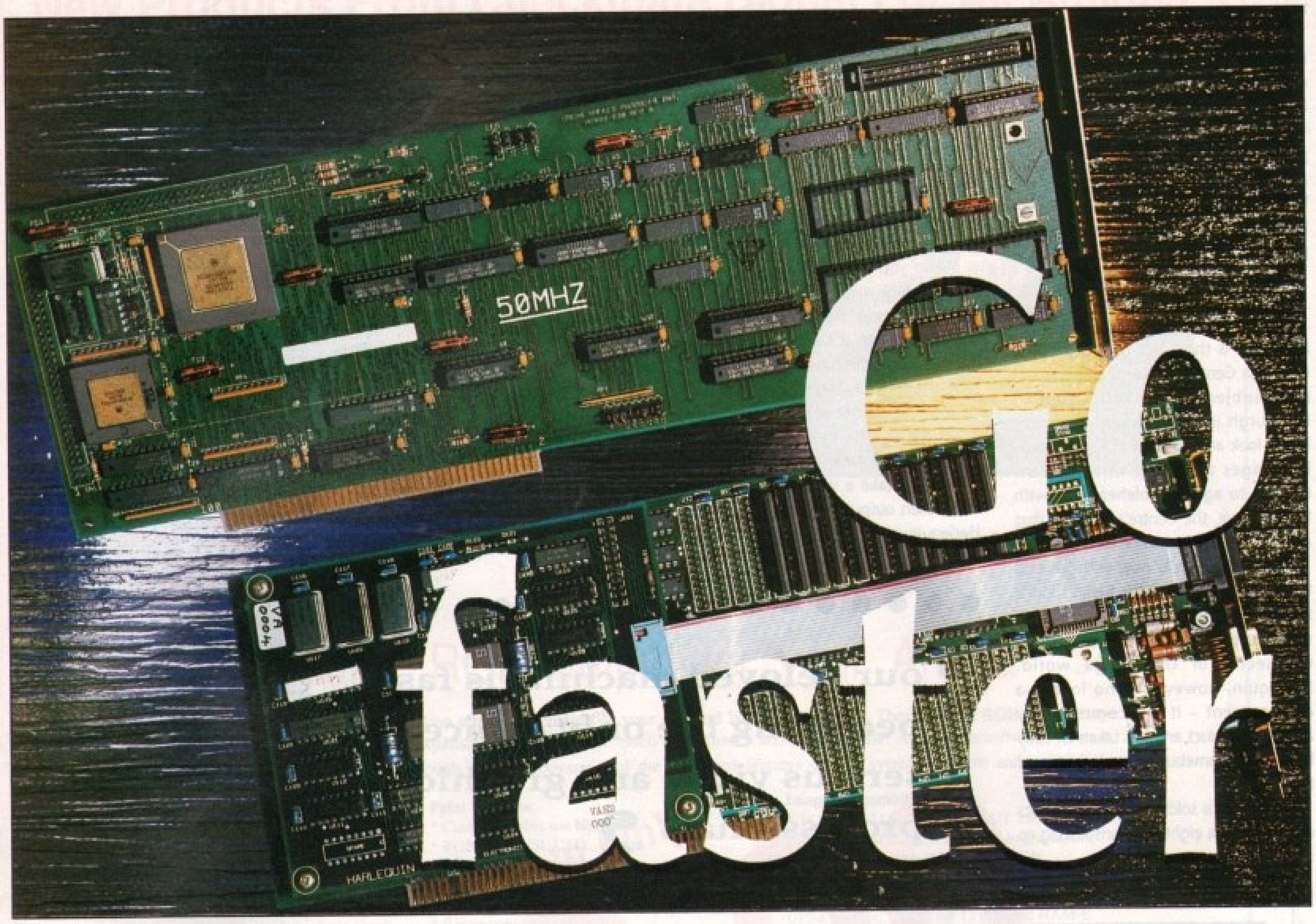
Value for money

Overall



...and here's the same image in normal Amiga HAM mode – make your own mind up.

THANKS.... Special thanks go to Brian Larkman for his invaluable assistance during the preparation of this article.



Go faster graphics

Stevie Kennedy takes a look at how an A2000 becomes a graphics workstation

If you buy a ray-tracing package worth £300 you might be disappointed to find out that it can take hours to produce a decent rendering. This is because the Amiga has to carry out a complex calculation for each pixel on the screen before deciding what colour it is, how much light it is reflecting, and so on. The amount of mathematics involved is such that even the Amiga's powerful 68000 processor finds the going tough.

Once you've rendered your object, you might then be a little miffed to find that although your ray-tracer can produce 24-bit image data, your machine will only display it, at best, in HAM mode. The difference between a palette of 4096 colours and one with 16.7 million is considerable!

Fortunately for those of us with a penchant for creating chrome balls on chequered landscapes, the solutions to both these problems are available in the shape of the GVP 3001 accelerator board, and the Harlequin 24-bit framebuffer. Both come as slot-in Zorro II cards for the A1500/2000, and both instantly boost your Amiga's kudos to dizzying heights.

Come on then!

In order to complete this month's ray-tracing feature, we fitted both boards into one of the ageing A2000s scattered around the office. From being a shy, retiring old machine with a dull, workhorsey appearance, the A2000 was transformed into a growling, spitting, bullish monster which I could have sworn was egging us on. This was a machine that could look after itself.

Just for fun and a bit of practice, we threw a few snippets of rendering its way. Not much, just some simple images from the examples provided with Sculpt 4D. The beast chewed them up and spat them back at us with something akin to contempt, and in an alarmingly short space of time.

OK, we thought, if that's the way it wants to play it, fine by us. We gave the Amiga a series of objects and effects to deal with, building up to images containing several light sources, and even one that simulated a magnifying glass, and it was only on the most complex that the machine began to look a bit pedestrian. On a standard Amiga, we'd have been stumped long before the latter stages.

GVP genius

The GVP 3001 card has been one of the industry standard accelerator cards for some time now, and is used in thousands of souped-up Amigas. The version we tried was equipped with a 33MHz 68030 main processor and a 33MHz 68882 maths Floating Point Unit (FPU), giving it a speed rating of an impressive 9.6 mips (Million Instructions per Second) as opposed to just under 1 mip for the standard Amiga.

The latest version of the card has a 50MHz clock speed and would enable an A2000 to blow the supposedly superior A3000 right out of the water. Indeed, the 33MHz version is faster by a fair stretch than the 25MHz A3000, and has the advantage of a 68000 fallback mode so that software incompatibility should pose less of a problem.

In terms of price, the board is one of those 'hang-on-to-your-wallet' items. Our 33MHz board with 4Mb of 32-bit RAM would set you back about £1500, so it's not for your average speed-mad schoolboy. With the 3001 in situ, however, the Amiga becomes one of the ➤

most powerful creatures to lurk on any desktop anywhere in the world, and the large number of professional users wouldn't part with theirs for twice the price.

Look out for the new GVP board with built-in SCSI hard drive interface, which Power Computing expect to be shipping as you read this.

Coat of many colours

Harlequin is the home-grown product of Amiga Centre Scotland, and was the main subject of our little jaunt to Edinburgh in the February issue. We had a look at Harlequin in its final testing stages and liked what we saw enough to agree wholeheartedly with Martin Lowe, the Centre's director, that a 24-bit revolution was on its way.

That revolution is now with us, and the 24-bit presence at the Berlin show a few weeks back points towards even more developments in the most exciting sector of the Amiga world. Harlequin, however, is no longer a development – it is a commercially available product and has taken an early lead in the framebuffer war by virtue of that fact.

The board is sold as a 32-bit graphics card, the extra eight bits constituting an 'alpha channel' which television studios or video producers can use to program and control the images Harlequin is displaying.

Using linear keying, for example, the board can produce broadcast quality graphics at a maximum resolution of 910 by 576 pixels, then smooth these into an external video source over *256* levels of anti-aliasing.

When you think that the usual anti-aliased image might have no more than four or at most eight shades of anti-aliased edging, it's clear that boards such as Harlequin have the potential to turn Amiga graphics on their heads.

Software control of Harlequin images is carried out via RasterLink, which is bundled free with every board and which can take a variety of input formats, then output them either direct to Harlequin or to disk as a different format. The board we tried out was the Harlequin 1500, sporting 1.5Mb of video RAM, but without the alpha channel. In this configuration, Harlequin would cost £1395 plus VAT, rising to a daunting £1795 plus VAT for the model with alpha channel and enough VRAM for double buffering.

Not for the hobbyist, but a very attractively priced alternative to established professional graphics machines.

Conclusion

With such a highly advanced level of add-on boards queuing up to stuff themselves into the Amiga, it is hardly surprising that our beloved machine is fast becoming the only choice for serious video and graphics professionals. More and more, thanks to the likes of GVP, ACS, and the mouth-watering Video Toaster, the Amiga is finally taking its place as a top-end serious applications machine, confirming what we've all known since 1986.

'our beloved machine is fast becoming the only choice for serious video and graphics professionals'

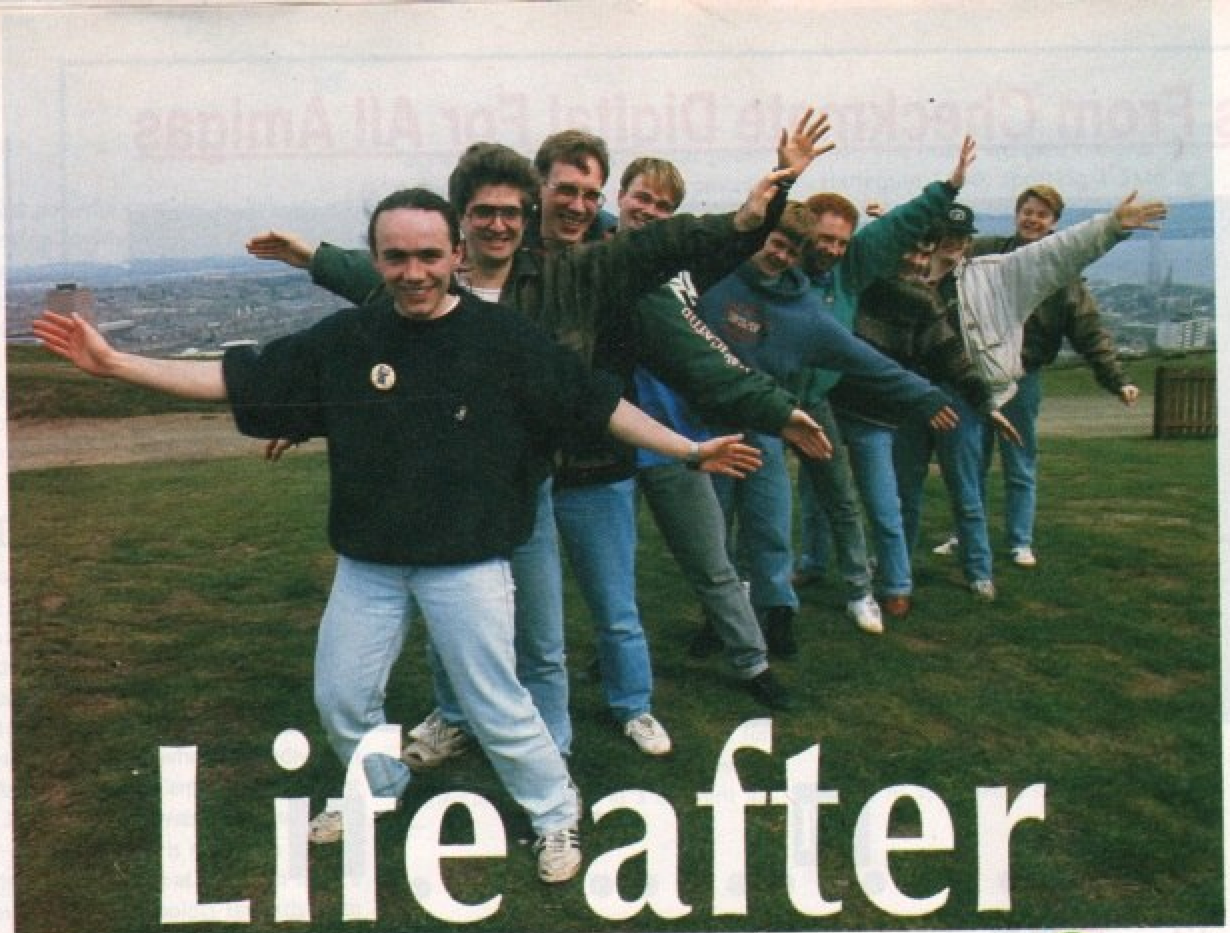
Product information

The 3001 accelerator board is a product of Great Valley Products
Supplier: Power Computing
(0234) 843388
Available: Now
Price: £1500 (for model as tested)

Harlequin is a product of Amiga Centre Scotland
Available: Now
Supplier: Amiga Centre Scotland
(031) 557 4242
Price: £1395 to £1795 plus VAT

GVP 3001
Ease-Of-Use 8/10
Implementation 9/10
Value-for-money 6/10
Overall 8/10

Harlequin
Ease-of-use 7/10
Implementation 9/10
Value-for-money 6/10
Overall 7/10



Life after Lemmings

Amiga Computing's very own Lemming, Leslie B Bunder built some bridges to Dundee to speak to DMA Design, the team behind the game

In less than three years, DMA Design has come from nowhere, to the point of being one of the UK's most respected and successful development teams. Who can forget way back in the dark old days of 1988, the first DMA release, Menace, which offered Amiga owners non-stop shoot-'em-up action?

When Psygnosis, one of the UK's premier 16 bit labels, saw it, they realised they were onto a winner and their partnership with DMA became solid.

Over the course of the last three years, the partnership has released some truly great products. In early 1989, Dave Jones, the main man at DMA, wrote Blood Money, a title which had gamesters going crazy. During the next 18 months, DMA was busy converting various Psygnosis games onto different formats such as PC, C64 and the PC Engine hand-held.

Shadow of the Beast on the PC Engine is one of DMA's most eagerly awaited projects. The conversion has been a year in the making and the results are quite stunning. The game is a direct Amiga conversion with a number of major improvements. First of all, there's improved sound which will feature a 10 minute intro sequence featuring speech. The game is being released in both Japan and the US, therefore a different version of speech is being coded for each market.

Earlier this year saw the release of Lemmings. A combination of simple plot and addictive gameplay ensured it became a massive number one hit and winner of a number of major awards and accolades worldwide.

Following the enormous success of the Amiga release of Lemmings, the cutsie dungaree-clad heroes will be invading screens on a huge range of formats including Atari ST, PC, Amstrad CPC, Spectrum, PC Engine, BBC, Apple Mac, Gameboy and Super Famicom. There are even plans to produce a Lemmings coin-op.

The DMA team

DMA has a great deal going for it. Much of the team's talent rests in the skills and ideas of main man Dave Jones. Dave is a former employee of Timex in Dundee. When made redundant he took his pay off and bought an Amiga to start a computer studies course.

Halfway through the course Dave finished writing Menace and found himself in the position of either carrying on with studies or becoming rich and famous writing games. He choose the later: "Things got much bigger than I thought and I had to choose between finishing studies or forming a company," Dave recounts. "We now take on quite a few programmers from the college I left, but the deal at the moment is that they say to me: "Please don't take on anymore people until they finish their course!"

One thing that struck me instantly about DMA is the down to earth approach they take. Their Dundee offices are quite unlike most development teams I have seen – spotless, clean and no smell of either alcohol or cigarettes. In fact, one or two programmers are quite heavily into drinking fresh milk!

Despite many previous hits, including the "Beast" series, Lemmings has been the game that set up the Dundee boys as a household name. Dave is still slightly stunned by the scale of the Lemmings sucess story: "We always thought it would do well but never realised it would be so big."

Lemmings concept

There have been various rumours about how the initial concept of Lemmings was arrived at. Some cynics have suggested that the classic we have come to know and love came about after a 10 hour non-stop drinking session! Dave takes up the story: "The actual truth was that Mike Dailly spent his lunch



hour working on some graphics of characters going up a hill with a gun blasting at them. The routine just cycled and from that we saw a game in the making."

From those initial doodles , DMA spent 18 months working out how the concept could be turned into a proper game. Those involved in the project were sworn to secrecy from the begin-



DMA drop the cutsie them with their next rmajor release hired guns



Dave Jones, the man behind a million lemmings



ning: "Because it was such a simple idea we were careful who we spoke to about it." Dave recounts. DMA are not worried about Lemmings clones: "I don't know of any copies appearing. Years ago when someone had a good idea it was copied, now designers take a different approach." To combat any potential copies appearing, Lemmings 2 is already being coded and a special Lemmings PD demo is set to appear: "The whole idea about putting the Lemmings onto the PD scene is to keep the interest going. So we've got a really brilliant demo of the Lemmings as a 5 piece band live in concert!" Dave enthuses:" There's also going to be animation of Lemmings fans fainting in the audience, it's going to be quite wild!".

Amiga vision

Dave is quite a big fan of the Amiga: "We tend now to do all our development on it, as it's the ideal machine to work on."

One Amiga game Dave would like to do a re-write on is Blood Money: "After Menace which was quite a simple shoot -'em-up, I wanted to do something much tougher. The problem with it was that it was too tough and the levels were too long. With each level you had 50 or 60 screens and it took a long, long time to reach the end. Looking back at games like R-Type the levels are three or four screens and that's how we could have done it."

Dave is very astute, aware of what is going on in the games industry, so which programming teams does he watch out for? "You've got to admire Bullfrog for their originality, not so much the technical side as I don't think they are very technical, but you don't have to be. You've got admire the Bitmaps, but they are the complete opposite. To me they are not very original but what they do is very polished and nice."

Piracy purge

If Dave was given a free hand to change anything in the games world, software pirates would be his target. "I would wish to try and stop piracy. As a developer, consoles and CDTV are good news for us because games are very difficult to copy. If there wasn't piracy we would be able to take on more people. Obviously we sell quite a bit, but we would sell more."

So how does Dave envisage his plans, is it about changing attitudes with people? "I think people copy games because it is so easy. I would also like to see software houses releasing more quality games rather than bad games. Bad games are not good for the industry as people buy a couple of bad games and say: "Why should I buy games again?" You have to have sympathy for people who buy bad games. If someone produces good games, there is no reason why people shouldn't buy them. I think what Nintendo did was right by restricting what software was allowed out."

Quite a few software houses are planning to bring out Amiga games on cartridges. Is this a medium DMA would consider? "It would have been a great idea but it's not really feasible now... If the Amiga was launched as a cut down games machine it would have been ideal and maybe Commodore should still do it."

The future

One thing which people notice with DMA products is that they are original. Dave explains: "People tend to get bored with doing conversions. Also an original game leads to much more and there's more life in them."

Dave explains what is exciting him at the moment: "It's the CD and multimedia type aspect. Microsoft has defined what multimedia machines are; a 286 VGA, CD and two megs of RAM. To us that's a nice spec, we could do alot with that. I also like the Intel DDI chip set which gives you real time compression. Put that chip together with a console and you have a great machine."

So what does Dave think makes DMA so successful? "We are very finnicky when it comes to writing games and playing games. We have scraped a lot because if we are not happy with them we won't go ahead with it. It's probably a bad idea financially, but we only want to offer high quality games. If we could have a name like Ultimate (Purveyors of fine quality Spectrum games 1984-1987) then I'll be very happy."

Dave recounts a conversion DMA turned down: "If somebody offers us something that is not possible then we say we can't do this.We got offered Golden Axe, which we thought was great as we all enjoyed the arcade game. We were told to do Amiga and ST versions in three months and said if we did it, it would be really crap. We don't want to do anything that will turn out to be bad."

Since the release of Lemmings, the DMA postbag has swelled. "We get people writing in asking how to do various levels. Just recently we had someone send in a Lemmings cuddley toy which was really nice of them." Dave chuckled. "It's amazing the enthusiasm games players show."

Mission impossible

Most of DMA's game ideas have been huge hits but there have been exceptions. Dave recounts the story of one idea which never saw light of day: "We wanted to do one with Johny Fartpants from Viz. The idea was to base it on a game called Bugaboo Flea on the Spectrum. You had to control the jump of the character by fart power. To kill aliens you bent over and struck a match. We were going to speak to Viz, but Virgin got there first."

Dave is a fan of sixties TV series Mission Impossible. One of his aims is to get the licence to use the Mission Impossible music in a game: "We have made several enquires to gain the rights."

DMA would like to see more support offered by the hardware manufacturers: "It would be nice if they said to us 'We're designing a new machine – what do you feel it's lacking? What do you have problems with?' The manufacturers should try and consult the software developers so we can both get the maximum out of the machines."

What of the future? "We would like to see every home having a console or games machine with the hi-fi and plenty of DMA games to play with it!"

Coming soon

Walker

Walker is a three stage game combining shoot-'em-up, platform and



unique 3-D parallax sections. Set somewhere in the future, other details are strictly under wraps.

Hired Guns

Taking RPG into the future with four player option. You play the role of a futuristic bounty hunter taking part in special missions in which you can compete against three other people. With fast action gameplay and interactive scenario this promises to be a monster of a game.

DMA Designs 1988-1991

Software Releases
(all on Psygnosis label)

Menace	1988
Blood Money	1989
Lemmings	1991



One of the most annoying things about productivity software is that a package will often appear which has *most* of the facilities you're looking for, but which lacks just one or two you consider vital. This has most often been the case with wordprocessors, which score highly in most departments only to fall down badly in the rest.

We had a preview of the latest addition to the Amiga productivity scene, Digita's Wordworth, and found a program which comes closer than any other to the elusive formula.

The user interface is of the by now standard point-and-click variety, heavily intuitive and easy for the beginner, with the usual keyboard equivalents for those who've been weaned off WordPerfect. Wordworth, however, is something a bit more special than just more of the same.

A writer's dream?

Stevie Kennedy took a lonely wander through Digita's latest release, and came out smelling of daffodils..

Not so similar

Multiple documents are opened in their own windows in identical fashion to ProWrite and Excellence, there's an abundance of icons for actions such as text reformatting and tab placement, and editing options meet the normal standards. When placed beside its competitors at this level, then, Wordworth offers nothing other than perhaps neater presentation.

Once you begin the process of document creation and output, things begin to look different. The program's eagerness is the first thing which impresses the user, because in simple terms, it is the only Amiga Wordprocessor to rival Protext for speed. Touch typists should find little to worry them on that score.

One niggle is the way things can slow down when the full 16 colours and hi-res (interlace) are used. At this point, Wordworth can become snail-like, but in the sort of modes you would normally use (four colour medium resolution), scrolling and editing functions move along at a much more acceptable pace.

One of Wordworth's most welcome features has to be its spell checker and associated thesaurus. The program uses the Proximity/Collins Linguibase, providing a 110,000 word spell checker with 26,000 word legal and medical supplement, and a 30,000 word thesaurus containing 140,000 cross-references.

This is roughly the same spell-checker as Protext 5, with the added advantage of a theasaurus, which Protext does not have. Checking is reasonably fast, if not as quick as Protext, and the thesaurus is nicely implemented.

Both functions work well, and although the spellchecker could be faster, the thesaurus is a consistently pleasing piece of software, offering sensible and well categorised alternatives to the most jaded scribe. The importance of these features cannot be understated, as how a document is touched up is almost as vital as how it is written in the first place.



Graphics can be imported even in HAM, and automatically converted

Felicitous formats

Users of established Amiga wordprocessors might be asking themselves what Wordworth can offer them. For most of us, the period of transition between one program and another can be traumatic and, what's more important, counter-productive.

Wordworth goes some way toward smoothing the bumps through its determined use of the most intuition-based interface, but by far its most generous offer to the upgrader or system-swapper is its ability to load and save documents in a number of different formats.

When the user selects 'Load' from the Project menu, he or she can click on 'Format' and choose between normal Wordworth documents and a number of popular alternatives. Protext, Prowrite, Kindwords, and WordPerfect are all directly supported, as are the options to save or load with line feeds and carriage returns at the end of each line or each paragraph. If you've ever tried to load a document from one wordprocessor into another, you'll appreciate how essential this sort of facility can be, and if you're attempting to upgrade from, say, Kindwords, you'll find the option to load in all your old documents is indispensable.

In addition, the mailmerge facility can accept address files generated in Superbase or in a custom mode as defined by the user. All the same, I was surprised not to find Prodata, the most common Amiga database, among the formats specifically catered for, especially as Protext is among the supported document formats.

Painless printing

The program's printing option is a particular pleasure. Printer drivers, print density, graphics mode, and shade type are all selectable from within Wordworth, and as a bonus there is an UltraPrint option.

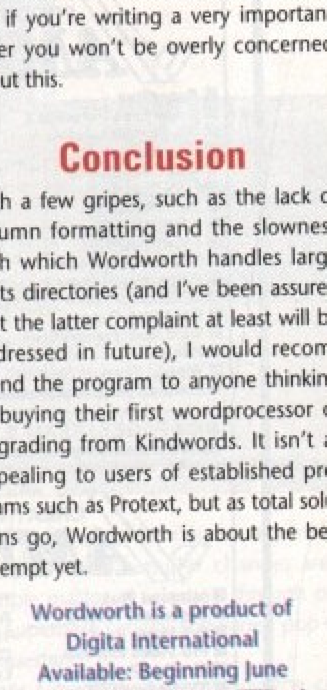
This is similar to the KindWords SuperFonts option in that using four special fonts supplied on the Wordworth Extras disk, the user can achieve a higher quality output than would otherwise be possible on standard dot matrix printers.

Using UltraPrint, you can print at up to four times the screen resolution and, as long as you have the requisite font sizes available, the resulting hard copy is considerably better than normal. The downside is increased printing times, but if you're writing a very important letter you won't be overly concerned about this.

Conclusion

With a few gripes, such as the lack of column formatting and the slowness with which Wordworth handles large fonts directories (and I've been assured that the latter complaint at least will be addressed in future), I would recommend the program to anyone thinking of buying their first wordprocessor or upgrading from Kindwords. It isn't as appealing to users of established programs such as Protext, but as total solutions go, Wordworth is about the best attempt yet.

Wordworth is a product of Digita International
Available: Beginning June
Supplier: Digita International (0395) 270273
Price: £129.95





Superbase Professional 4 is about to transform the face of the Amiga in the business world. Paul Austin dons a pin stripe and points out why

Putting the PC to shame

Databases are nothing new to the Amiga but in the past the average offering was exactly that – average!

The choice, to say the least, has been limited and if you wanted software to handle corporate applications your best bet was to buy a PC.

It's true that old favourites such as Prodata are still powerful examples of the no nonsense approach to data storage. If, however, you want a graphical user interface that can incorporate scanned images and sound along with a dedicated programmable database plus comms and specialised printing software, the old guard soon start to look very old indeed.

Superbase4 is literally set to redefine the Amiga's place in the business sector. In the past the serious business applications were considered to be purely for the PC with most authors and software companies not bothering to spread any fertiliser from the corporate work horse to other machines.

At first this wasn't too much of a problem but over the years the Amiga has certainly moved on, and so has its applications. If your business has spent thousands on Amiga hardware the last thing you want is a PC forced on you for menial labour.

In business your image and its projection is almost as important as your products. This is obviously very well understood by the authors of Superbase and as a result it's much more than an automated filing system.

It will do everything required of a data management system but thanks to the tried and tested abilities of the Amiga it can do much more than that.

Sound and Vision

The sound and vision side of Superbase's talents are perhaps the most obvious departure from the norm as far as standard data management is concerned. It's here that the Amiga puts the PC to shame for abilities, quality and of course cost.

Sound

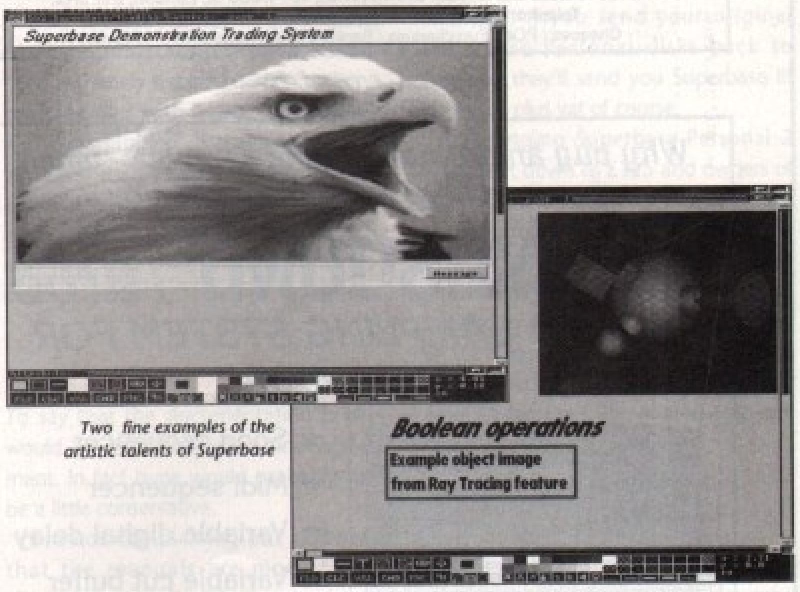
The sound option is perhaps the silliest part of Superbase. Even if you're a memory bound power user with a hard drive big enough to choke a horse it's difficult to see why you'd need sound samples in either Raw binary or IFF formats. Nevertheless, it's there if you want it.

The second sound application is the ability to reproduce data in the rather droning tone of the Amiga's familiar robotic voice. Again I doubt this option will be heavily used but sometimes being glued to a monitor can be problem. As a result, filtered data relayed as sound could occasionally be a handy option.

Vision

The visual side of the package is a much more serious proposition as it allows you to display any digital image whether it be standard IFF or the full 4096 colours of Ham.

As if that's not enough it can also import PCX graphics which are standard on the PC plus CompuServe's GIF format which has become the standard means of graphic transfer in the comms world.

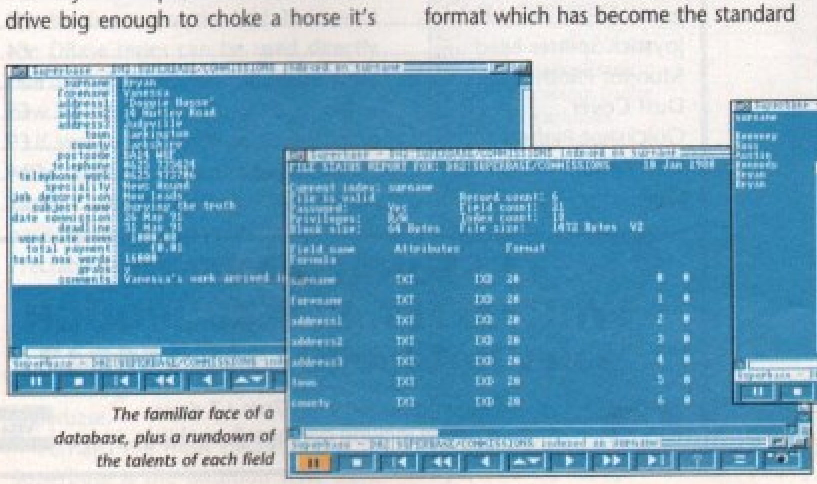


Two fine examples of the artistic talents of Superbase

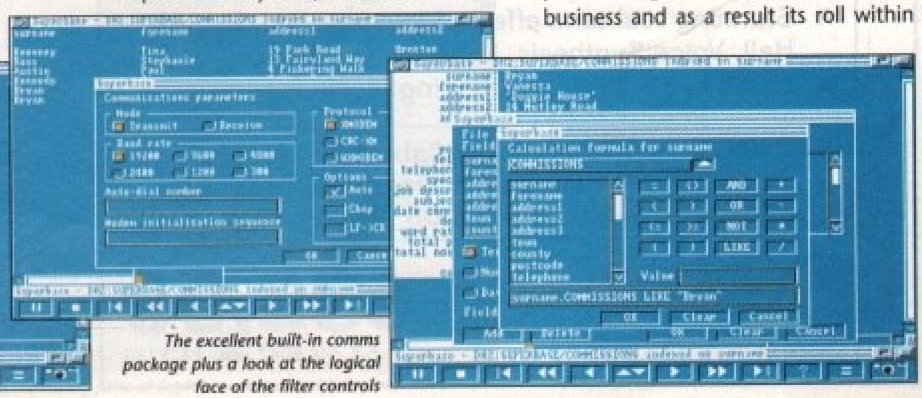
Displaying you imagery is a simple matter of defining its position within a form. Obviously in most cases images will need to be rescaled and have the aspect ratio adjusted, and in some cases grayscale conversion may be required.

All of these complex changes are a simple matter of selection through one of Superbase's many and varied pop up requesters.

As I mentioned, projecting the corporate image is a big part of modern business and as a result its roll within ➤



The familiar face of a database, plus a rundown of the talents of each field



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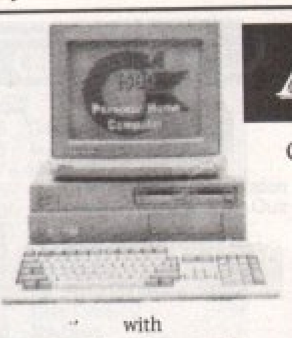
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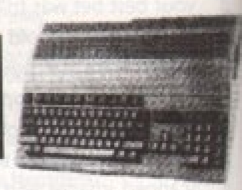
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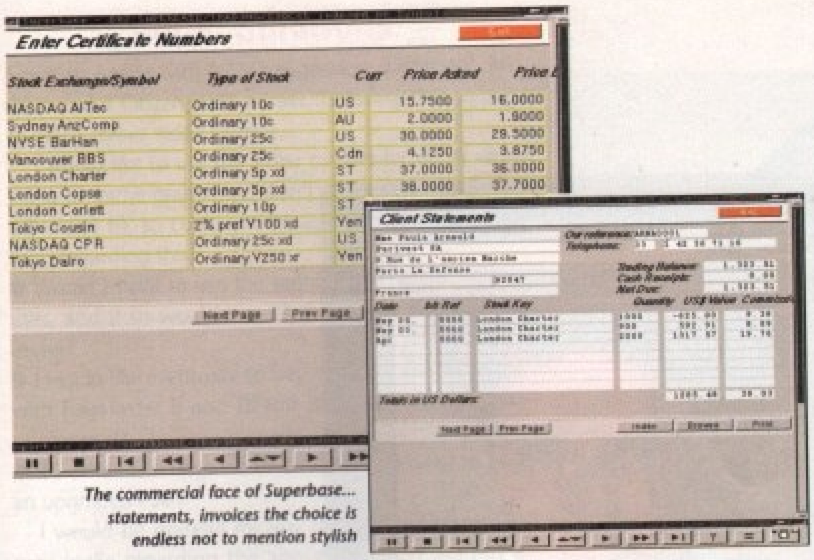
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The commercial face of Superbase... statements, invoices the choice is endless not to mention stylish

➤ Superbase is taken very seriously. The form designer, for example, is a completely separate program which is loaded on request and runs in tandem with the main program. Isn't multi-tasking marvellous!

Stylish displays

The designer is in effect a dedicated paint package which allows many elements, whether they be sound, graphics or data, to combine on a single stylish page.

Up to 16 colours can be employed along with various fonts and tools, and all in interlace if you want it.

My only minor complaint would be the slight difficulty I encountered when deleting boxes and the occasional less than attractive imported graphic which, to be fair, could usually be rectified with a little tweaking and the odd reload.

Information exchange

Due to the Amiga's relative isolation as a business machine, good communication with other formats is an essential. As a result, Superbase is well versed in the art of talking to other formats.

If, for example, you have an existing database produced with such well known names as Lotus 1-2-3, Excel or Microsoft to name a few, they can all be imported into Superbase and used directly.

Even Ashton-Tate's corporate classic DBase III and its predecessor DBaseII can be drawn into the fold. Neither of the DBase series can be used directly but their data can form the basis for a new Superbase file.

If you've ever tried to transfer files from one format to another you'll be familiar with the problems that usually accompany the process. Fortunately Precision have noticed the problem and as a result have added an extremely useful comms option which allows data to be transferred from the RS232 port of another machine direct into Superbase.

Perhaps the most pleasing part of Superbase is the Intuition style front end which offers the familiar Amiga pull downs plus a huge range of easy to use yes/no requesters. A fine example of the ease of use approach is the tape deck control system which allows you to browse with ease through your files.

The best of these push button controls has to be the Filter requester which is represented by the = sign. This brings up a well designed logical control pad which makes complex filtering a simple matter of writing a simple and/or command.

For example you could create a filter which looked through the database for everyone with a name **LIKE** "Smith" **OR** "Jones" **AND** both of whom happen to have an interest in "train spotting". The only real problem is the program's insistence on full names. Shortening field names is the kiss of death to any filtering operation but it's a small price to pay for the power.

The filtering of data doesn't stop there. If you want to squeeze the most from your market research the **Query** option allows you to sort, filter and display information in any manner you could need.

Once again this appears as a separate requester and has numerous options for the output whether it be to the screen, printer, disk or even as speech.

Another pleasant element of the program is its readiness for change. In most packages, once the database and accompanying indexes have been designed and data added alterations can, to say the least, be difficult and in some cases impossible. Superbase however is more than happy to accept extra fields and alterations without complaint.

One of the main reasons for this flexibility is the program's use of the multi-file system which allows each element of the database to be stored as a separate file. This not only makes the database easy to adjust but it also means that the cross referencing of files means that duplication of data is kept to a minimum. By using the link option, formerly huge repetitive data files take up a fraction of their previous disk space.

DML

If filters aren't enough when querying the database, then the Database Management Language is just what you'll need. The language itself isn't a million miles away from basic and as a result it's quite easy to use.

The only real question is whether you'd ever need to. The already excellent filter and query options can go very deep into your data and as a result will more than match the needs of the average user.

DML is strictly aimed at the experts or, to be more accurate, those who need extremely detailed reports on very complex files with heavy calculations and cross filtering. If that sounds like you then it's perfect. As I mentioned earlier networking is a definite area of application for Superbase and it's probably here that DML will come into its own.

Heavy reading

To say that the documentation is big would be something of an understatement. In fact huge would probably still be a little conservative.

I'm not complaining but I do feel that the manuals are more of an attempt to ease Precision's conscience for the frightening asking price rather than being essential reading for the user.

Having said that you'd be well advised to give them a good read as blindly stumbling through the program without them will probably end in tears.

The manuals take the form of a guide to the database, which is ideal for the beginner, and a more advanced reference manual for features such as the form designer and DML.

Both volumes are very well presented and give an excellent introduction to all the available features. A word of warning – always remember to wear safety shoes when reading them, after all accidents do happen.

You can't fail to have noticed my reluctance to mention the price. This section will no doubt give you a good idea why. Superbase weighs in at a frightening £349 plus vat. As I said, this isn't aimed at the home market, and for business software it's considered cheap! The same package on the PC, for example, would add an extra £200 to the bill.

Upgrades

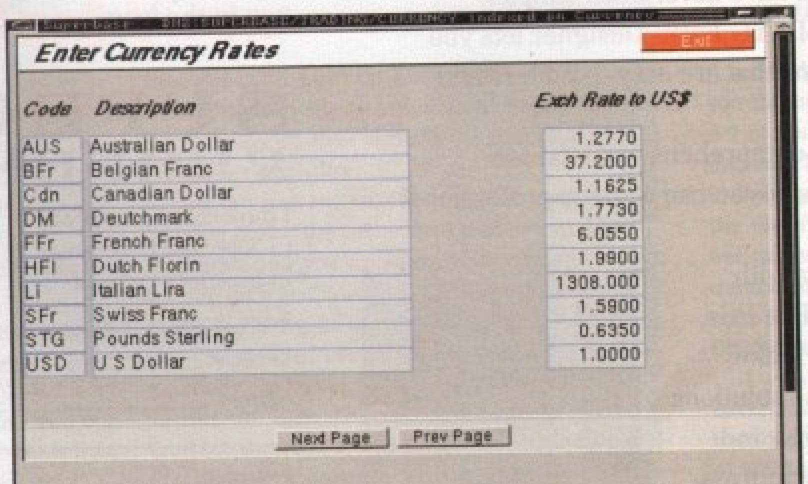
It's not all doom and gloom, and if you're a Superbase user of old a whole range of upgrades are on offer. For example, if you send your original Superbase Personal disks back to Precision they'll send you Superbase III for £150, plus vat of course.

Exchanging Superbase Personal 2 will take it down to £125 and owners of old versions of Superbase Pro can make the change for a paltry £75. It's easy to be blasé about cost when you're using a review copy but it's worth remembering that to get a system to do the same as Superbase Pro4 would cost the price of a powerful PC plus a considerable amount for the PC's inflated software price.

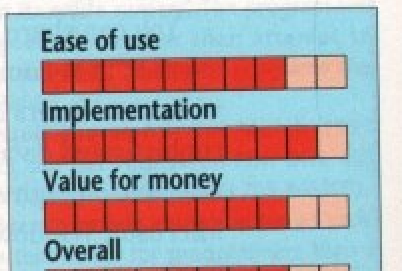
On the record

Yes, it must be said, Superbase is expensive but it's also very powerful and extremely flexible.

For personal use a cheaper alternative like Prodata would be more than adequate. If, however, you're using the Amiga in business, Superbase Pro4 is the only real option, and if you want organisation and efficiency with a touch of class, it's a must.



If you're working with figures like these the asking price of Superbase is soon put into perspective



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Europa House, Adlington Park, Macclesfield SK10 4NP

Video Solutions

I own an Amiga with 0.5Mb expansion, additional disk drive and a Citizen Swift printer. I am hopefully going to buy a colour video camera.

I would like to use the video camera for either digitising or frame grabbing (I don't really know what the difference is), so could you please answer a few questions regarding this?

- Would I have to use the same port that the printer uses, and if so would one of those data switches be useful?
- I would like eventually to buy a hand scanner for use with PageSetter II and DPaint III. Would this use the printer port?
- If I wanted to upgrade to 2Mb would I need to buy an upgraded PSU?

I would be grateful for any recommendations you may make regarding the above queries. I am not a techie, so I would greatly value your comments.

P J Mallon, Witney

Digitising is a general term for the process of converting a real-life or analogue signal, image, or sound sample, into the series of ones and zeros that are all a computer can understand.

Frame-grabbing is just a particular type of digitising, and is one of the most common ways of transferring images from video tapes to a computer screen.

As for data switching boxes, you'll probably need to use one if you intend having the frame grabber plugged in all the time. In this case, it would gobble up your printer port, making a data switch essential if you want to avoid wear and tear on the port.

There's a growing list of quality hand scanners available for the Amiga, so look out for our roundup in next month's issue. As long as you don't insist on full colour graphics, you should be able to find a hand scanner which operates at up to 400dpi (dots per inch) from PML, Naksha, or Golden Image to name but three.

If you upgrade to 2Mb (essential for serious DTP work), it's a good idea to go for an upgraded power supply as well. The Amiga will continue to function with a bigger RAM board, but the increased power demands will result in a higher number of crashes and gurus.

We do hear from time to time of terrifying reliability problems with the popular 1.5Mb upgrade boards. If your budget is tight, they are an inviting option, but if you have a bit more cash you should go for one of the bigger systems, such as the ICD AdRAM or Cortex 8Mb expansion. These are generally of a much higher quality and price than the smaller boards, but then you pays for what you gets.

Disk-gusting errors

I received a copy of Amiga Computing from the UK, together with coverdisk, but before I could make a backup copy, someone (come on, own up – Ed) inserted the disk into df1: where it developed a read/write error. I would like to know:

1) What causes read/write errors?

2) When I re-insert the disk, I get the system request "Disk structure corrupt. Use DISKDOCTOR to correct it." Is DISKDOCTOR software that I will have to acquire, or is it something Workbench 1.3 can do? I have seen it in the C: directory.

3) After using DISKDOCTOR is it possible to recover information from a disk that has been 'cured'?

I have enjoyed using the Amiga at home since May 1990 and this is the only dark shadow in an otherwise bright experience. An even brighter experience would be a subscription to your magazine.

On a final note, how do you print out text from MicroEMACS on the Extras disk? I used Notepad for this letter.

Erick Njoka, Nairobi, Kenya

Notepad? You're a braver man than I! Here goes:

1) Read/write errors are caused by scratches or dirt on the magnetic surface of the disk itself ('hard errors'), or by the data becoming corrupted through magnetic means ('soft errors').

If you keep your disks in a disk box away from strong electromagnetic sources, and handle them properly (don't try to remove them while the drive is accessing, in other words!), they should be reasonably safe from read/write errors.

To use DISKDOCTOR, open CLI then type

```
DISKDOCTOR DRIVE <drive number> <RETURN>
```

A succession of onscreen prompts will then guide you through the process of curing a disk. See page 2-9 of your Enhancer Software manual for further details of DISKDOCTOR.

3) Unfortunately it is often impossible to recover all the files from a damaged disk after DISKDOCTOR has carried out its crude surgery. The program will delete corrupted files rather than attempt to recover them, and so is inferior to programs like DiskSalv and FixDisk.

If you missed the wonderful March 1991 coverdisk, you can get FixDisk on Fish Disk 403 from Softville PD (overseas ring (+44) 705 266509).

4) MEMACS doesn't include a print option as such. It's more of a text editor for programmers than a word-processor style utility, and I'd advise you to stick with Notepad for letters until you get hold of

Hard Virus

I've been told that viruses on hard drives are more damaging than they are on floppies. Is this true and is there any way to prevent them getting on to a hard drive?

Also, does the 'initialise' on Workbench erase viruses?

J Dawson, Middlesex

Viruses on hard drives are indeed more damaging than on floppies because they can do much more damage. I mean, one floppy disk full of files is an annoying enough loss if corrupted by a virus, but imagine the gnashing and wailing of teeth that would be provoked if 20Mb of data went pop!

Apart from this, most viruses are equally at home on hard drives and floppies. Remember that although the vast majority of viruses are transmitted on the boot-blocks of floppy disks, they actually do their damage by attacking a file in memory or on disk.

You can prevent infection of your hard drive by using one of the better virus checkers, and as a hard drive user you would be most advised to go for one such as ZeroVirus III which allows you to check any drive or directory for viruses. In this way you can periodically 'sweep' your hard drive, especially the DEVS:, S:, and C: drawers where file viruses can lurk. The 'initialise' option on the Workbench menu and the INSTALL command in CLI will destroy boot-block viruses by writing over them. This crude method of virus killing is useless against file viruses.

a decent PD wordprocessor, such as QED on our Workstation disk, or one of the many commercial programs we've reviewed over the past few months.

Fools!

Regarding the April coverdisk program Bench 2.0 by Olof Lapri (or should that be April Fool!). Now come on! You can do better than that, although I'm sure a few people were caught out (try taking our phone calls! – Ed) by the fact that the mag was actually on sale in early March.

Anyway, for those who simply like the way Workbench 2.0 looks, here's a small startup-sequence so that you can fool a few people into thinking that you've already got it.

```
OnlyPal1
Tbar 5555 aaaa 5555 aaaa 5555 aaaa 5555 aaaa
WINSIZE 0 10 640 220
OPENLOOK
Sys:system/SETMAP gb
NewLoadWB
```

OnlyPal1 and WINSIZE are on April's coverdisk, and the rest can be found on the August 1990 coverdisk. All you have to do now is change your Workbench colours to pale grey, white, black, and pale blue, and there you have it.

Now, what I want to know is how many types of Agnus chip are there and how can I tell them apart? I'd like to upgrade to 1Mb chip RAM, or 2Mb if that's possible.

Anon

Thanks for the tip, though we'd have liked to have known your name!

The agnus chips, along with the amount of chip RAM they can access, are Fat Agnus (0.5Mb), Fatter Agnus (1Mb), and Super Agnus (2Mb). Fat Agnus has 8370 or 8371 on its top, Fatter Agnus has 8372A, and Super Agnus is labelled 8372B. There are several PD programs which will identify your Agnus for you without having to open the Amiga, but if you bought a new Amiga in the last 12 months, it will almost certainly have a Fatter Agnus installed, so there's no need to go to the trouble.

If you have an A500 and Fatter Agnus, you can upgrade by purchasing one of the larger RAM boards which have a 1Mb chip RAM option (most of those discussed above in Video Solutions do) and carrying out a simple soldering job. If you don't have a Fatter Agnus, you'll have to buy one. These are available from many of our advertisers, and shouldn't cost more than £60.

A2000 owners who'd like to use 2Mb chip RAM can get in touch with Bytes 'n Pieces (0253 734218) who will be marketing MegaChip 2000. This third party add-on will contain a super Agnus and extra RAM and will allow the graphics-grabbing 2000 owner to keep up with the A3000.

Bubble-Jet Blues

By a happy coincidence (my boss just bought one) I find I have access to a Canon bubblejet printer, but the printer driver I am using isn't very good.

On certain pages, especially when printing graphics, it has a tendency to print a funny pixel aspect ratio. Can you tell me why?

J Frapham, Corby

It sounds like either you're using the wrong driver or one which doesn't fully support graphics printing on the Canon printers. Luckily, there is a good-quality shareware printer driver specifically for the Canon. You'll find CanonBJ on Fish Disk 446.

Earth calling Amiga

I am writing to your magazine to tell you about the project that I am undertaking with my Amiga, and to ask through your pages for help in completing it.

Over the past three months I have been working on linking my modem to a walkie-talkie and transmitting the data to my friend who lives about a mile away. He downloads it via the second walkie talkie and modem, and the data is saved to disk using normal comms software. The problems that I face are very slow speeds (typically 300 baud), software incompatibility, and interference.

If any company or fellow Amigan with experience in this field would care to contact me, I would be very grateful for any information that they could send me with regard to both hardware and software.

Duncan Webster, RAF North Luffnham, Oakham

Can't say I've any experience of what you're attempting to do. I can only assume that your friend's suffering from a quarantining condition if you're forced into communicating in this fashion over a distance of a mere mile!

Seriously, though, I can only suggest that you use the best protocol possible to combat the effects of atmospheric interference. As for 'software incompatibility', you should be able to use a PD comms package as long as you've rigged up the radio-to-modem link. Any suggestions will be passed on, so get your telecoms heads on, readers!

Battered Amiga

I have an A500 with the usual extras, a 12V portable colour TV and a boat. What I would love to be able to do is use the Amiga afloat using the battery, and not have to resort to inverters to supply a small amount of power very noisily.

How can I make the Amiga run on 12V? Don't be shy in putting forward possible answers/suggestions as the machine is well out of warranty and I'm willing to have a go!

T Tavinor, Truro

Your A500 would be well out of life expectancy, never mind warranty, if you tried to hook it up to a 12V car battery, as you seem to be suggesting. Apart from the fact that an Amiga works on an AC supply rather than the DC current from a battery, you'd soon be engulfed in plastic-smelling smoke if you tried to pass 4 amps directly through an A500's motherboard.

If anyone out there can give us details of such a set-up he or she has actually *tried* with success, we'd be willing to pass it on.

Sussed Sounds

I have recently bought an A500 which I use mainly for writing music. Up until now I have been content with my lowly TV speakers, but now I want a bit more power and sound quality.

In your magazine I have seen adverts for speakers for the Amiga but these are only about 5 watts and I want a more powerful set. Can't I just go to my local electrical store and buy a good pair?

Also on the subject of sound, if I did buy a pair of speakers could I buy a CDTV and just plug in the speakers and use it as a CD player when I wanted to?

David Calder, Buckie

Boosting the Amiga's sound through external speakers is a relatively easy task as Commodore provide left and right stereo output channels via standard phono connectors. You can treat this output in the same way you'd treat any hi-fi source, and can route it through any normal amplifier.

A basic amplifier from Tandy, for instance, will cost you about £30, and any hi-fi speakers will be a vast improvement over a TV set. If you have a hi-fi system at home, you can play your Amiga's sound output through it so long as it has a line in.

Same old story ...

A local shop recently sold my younger brother (aged 10) a selection of disks, all of which were pirate copies.

The reason I write is that one of them seems to have damaged my external drive. The disk in question, copied using Action Replay Amiga, did something weird. Halfway through booting , it sent my drive completely mad, making a strange high-pitched buzz and tapping noise.

What I want to know is what is it trying to do? I suspect the program booting was attempting to force the drive to look for too many tracks.

The drive is now unusable. When I insert a disk, the system responds with "not a DOS disk in df1:" Is it possible to have the drive repaired or would it be cheaper to replace?

P.S: I have already contacted FAST over this matter.

Rupert Pepper, London

Congratulations on taking the correct measures regarding pirates who'd sell their wares to unsuspecting ten-year-olds. Let's hope FAST give them a good pasting.

I would advise you to buy a new second drive rather than have it repaired, as the minimum cost of repair will probably be about £45 and you can pick up a new drive for about £60. If you paid a lot for the drive, and would rather salvage it, you'll find an article on repairs in the June issue of *Amiga Computing* along with the names and phone numbers of the main repair centres. If you don't fancy sending the unit through the post, your local dealer should be able to do it for you, but be prepared to pay for the convenience.

It's not too hard to guess at the cause of the damage. If you were trying to load a heavily copy protected game which had been badly pirated, it would exhibit symptoms exactly like those you report. There'd be a lot of nasty noises and the drive would complain in a very audible fashion.

A good idea would be to check the pirate copies for viruses. Although it is highly unlikely, there's just a chance that you have run foul of a virus such as the Gadaffi strain, which attempts to play a tune with your drive, much to the embarassment and physical distress of the unit in question. Unlikely, but possible.

One last course of action would be to take the drive to the shop which sold your brother the games, and demand that they pay for a new one. If you remind them that it was a collection of *pirate* software they knowingly supplied which caused the problem, they might be inclined to supply a replacement.

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"Is it real or is it Master Sound?"
– Amiga Computing, May 1990



Passing an exam . . . applying for a job . . . whatever you want to do in life you need to be able to SPELL!

There's mounting alarm about the appalling standards of spelling among Britain's schoolchildren. MPs, teachers, parents and employers are all stressing the vital importance of being able to spell correctly.

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SPELL! is unique. It lets the user learn at his or her own pace. They can take as long as they like – or take on the computer in a high-speed challenge!

And this one package is ideal for everyone – with the lowest age group suitable for under-5s, while the more advanced words will stretch even the most able students.

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- **OVER 5,000 WORDS**
- **FOR AGES 5 TO 15**

SPELL! only costs £8.95. It is now available on disc and tape for six of the most popular home computers

FIVE ways to improve your spelling

In a Flash: Read the word as it flashes on the screen, then type it in. For practice runs, the word is left on the screen as it is typed.

Rocket: Hidden words have to be discovered in this hi-tech version of the old favourite Hangman. If they are guessed correctly the rocket will blast-off. Fail and all that's left is a load of scrap.

Lunar Buggy: Type fast for fun. The aim is to key in the word as it's pulled across the screen by the buggy. It has to be completed before the letters drop down a crater.

All Mixed Up: Jumbled letters have to be sorted out to find the scrambled word. To help beginners – and anyone else who is stuck – clues can be obtained at the press of a key.

Conveyor Belt: Words pass by on the screen and have to be remembered. Then they must be typed in – spelt correctly. This is a challenging test of both spelling and memory.

All the programs have several options for extra flexibility – like a timer with on/off option to

In addition to using the 5,000 words provided, parents – or children – can create their own word lists for using with SPELL! This makes the package ideal for practising those hard-to-learn words, or for "Learn these spellings" homework.

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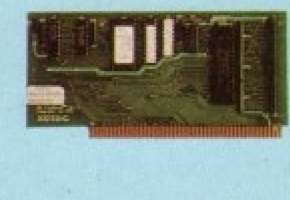
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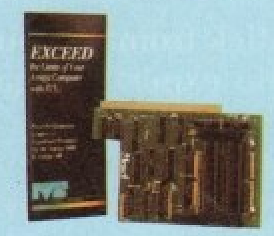
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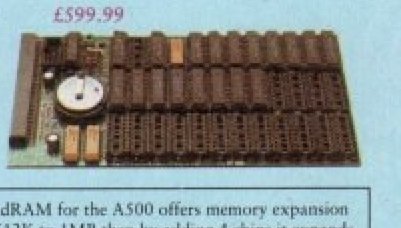


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Graphics

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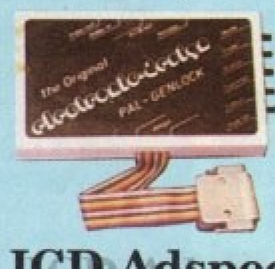


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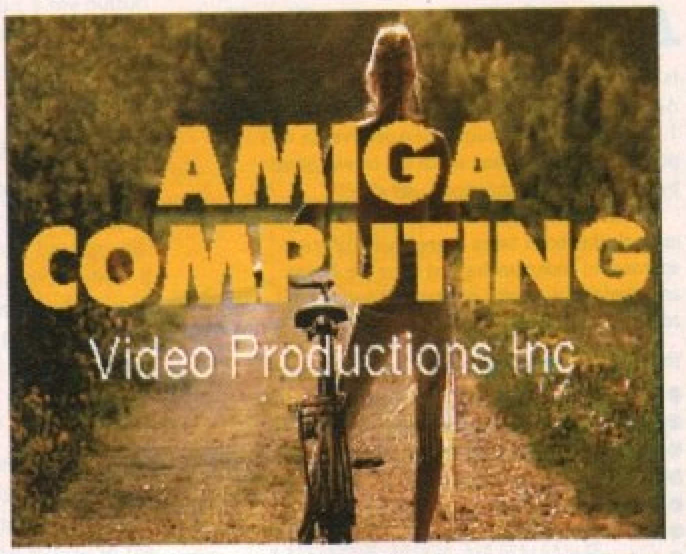
Looking for some decent video software but can't afford the prices of commercial products? Jason Holborn surveys the options available.

If you're feeling the effects of the recession, then chances are the old coffers are a little empty at the moment, especially if you've only recently forked out out for all the equipment neccessary to get your desktop video setup up and running.

Trouble is, your desktop video setup is only as good as the software you use, so all that expensive hardware could go to waste unless you're running the right packages.

However, with even the most basic of presentation packages costing anything from £50 upwards, your software could easily set you back more than the price of your machine and genlock combined! As is often the case, the answer lies elsewhere. To be more precise, public domain.

Everyone knows that the PD libraries are great for picking up the odd game, a Mandelbrot generator or even an obscure (and usually half finished!) programming language or two, but they can also be a great source of desktop video software. Here's a look at two PD packs aimed squarely at the video enthusiat.



Here's one I prepared earlier . . . sMovie could be the answer to your video titling dreams!

TV graphics

George Bailey's TV Graphics pack is a two disk collection of useful video-orientated graphic files.

The pack doesn't include any programs itself. Instead, the materials provided must be used in conjunction with an existing paint package such as Deluxe Paint – think of it as a desktop video clip art disk if you wish.

Ok, it doesn't sound particularly Earth-shattering stuff, but the TV Graphics collection will prove to be an invaluable collection of disks if you're a little lacking in the old artistic talents department.

The pack contains several different types of clips, ranging from complete backgrounds, to frames and 'parts'. Frames are basically small sections of border which can be continuously pasted down, flipped and rotated within a paint package to produce frames around text etc.

Parts are small graphic elements that can be manipulated to produce a variety of different background screens. A couple of bit-mapped Amiga fonts are also included, but they are really nothing special.

As an example of what is possible, a couple of demo screens are included. The one shown elsewhere on this page was created within DPaint by first loading in some chrome frames and then flipping to the spare screen.



It looks pretty dull here, but that black area will be replaced with the incoming video signal when you connect up a genlock.

The second file (BRICKS background) was then loaded into the second screen. Going back to the spare screen, one of the frames was picked up as a brush and then moved to the bricks screen.

In this particular example, a drop shadow was first added and then the frame was moved to the upper left and dropped in place. The shadow area was then re-worked with a darker colour mixture for a more realistic look.

Finallly, to allow your Genlock to mix in an external video source, the inside of the frame was painted black with colour 0.

As you can probably appreciate from the example, the TV Graphics collection has only one drawback that has nothing to do with the actual files themselves.

To achieve even half decent results, you have to have a pretty thorough working knowledge of your chosen paint package. If your knowledge of DPaint doesn't go any further than the freehand draw function, then you're unlikely to get a great deal out of this pack. If, on the other hand, you're a bit of a dab-hand with DPaint, then TV Graphics is well worth the asking price.

Video applications

In total contrast to the TV Graphics collection, the Video Applications pack is literally crammed full of useful video-related utilities.

This two disk set comprises over fourteen separate utilities, some useful, some not so useful. Not only that, but it comes complete with two KARA colour fonts and a selection of standard Amiga mono bitmapped fonts. Once again, though, the mono fonts are nothing special.

Undoubtedly the best program of all is sMovie, a dedicated video text scroller that is an ideal alternative to commercial scrollers. What it lacks in cosmetic features it more than makes up for in terms of raw titling power.

The program can use any standard Amiga bitmapped font, so there's no restriction on the size or style of text that you use within your presentation. All you have to do is prepare an ASCII text file that contains the text to be scrolled and a few control commands that tell sMovie how to display your text. It can also automatically centre lines of text, therefore keeping things as tidy as possible.

Scrolling is controllable from within your text files, but you can over-ride this with the mouse. Simply by dragging the mouse forwards across the desktop, you can speed up, slow down or even stop scrolling all together.

SMovie is a great little utility that could show quite a few commercial packages a thing or two. Indeed, I actually use it myself extensively in preference to packages costing hundreds of pounds. As the old saying goes, the simplest of packages are often the best. Definately highly recommended.

Another handy titling tool is SportsText, which allows you to generate and display up to 100 pages of video titles. Version 1.01 of SportsText allows you to use up to eight different fonts within your presentation, add any one of three different drop shadow effects to text and alter the depth of drop shadows.

Most of the other utilities are rather vague in their use and will perhaps be of limited interest to most amateur video enthusiats.

However, it really is worth buying the Video Applications pack just for sMovie, a utility which you'll swear by after little more than a few hours use (and I don't mean from frustration!).

And besides, you may even find a use for the rest of the programs!

Reader offers

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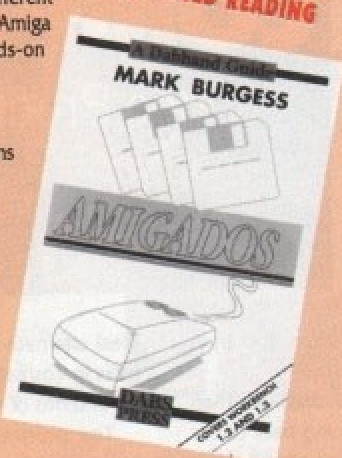
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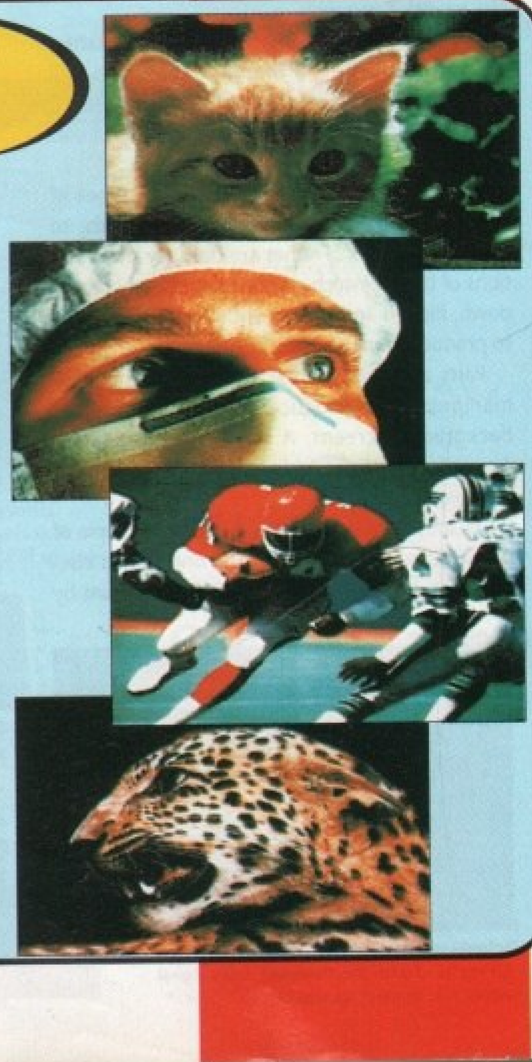
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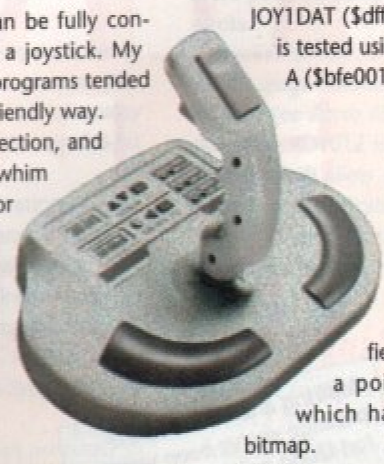
The joy of sticks

Get your joystick ready as Margaret Stanger starts to assemble a scroll routine

This month's program can be fully controlled by the touch of a joystick. My previous machine code programs tended to ignore the user in a rather unfriendly way.

The display scrolls in every direction, and can even be switched off at the whim of the user. No more waiting for timeout!

The registers are read directly for both gameports, setting appropriate flags and encouraging diagonal movement.



Tech talk

The register JOY0DAT can be read directly for the movement of the joystick in game port 0. If the joystick has been moved to the right, bit 1 is set.

When it has been moved to the left, bit 9 is set. Backward and forward movements are a little more complex. If the joystick has been moved backward, bit 0 has a different value from bit 1. If the joystick has been moved forward, bit 8 has a different value from bit 9.

```
move.w   $dff00a,d0
;move JOY0DAT to d0 (game port 0)
btst     #1,d0
;test bit 1 for joystick right
beq      left
move.w   #1,xmove
left:
btst     #9,d0
;test bit 9 for joystick left
beq      down
 move.w   #-1,xmove
down:
move.w   d0,d1
 ;copy d0 to d1
lsr.w    #1,d1
;move bit 1 to bit 0, and bit 9 to bit 8
eor.w    d0,d1
;exclusive OR d0 and d1
btst     #0,d1
;test bit 0 for joystick down
beq      up
move.w   #1,ymove
up:
btst     #8,d1
;test bit 8 for joystick up
beq      jfire
move.w   #-1,ymove
```

If gameport 0 fire button has been pressed, bit 6 of CIA-A parallel port A is set, otherwise the bit is clear.

```
jfire:
move.b   $bfe001,d1
;CIA-A parallel port  A
btst     #6,d1
;test bit 6 for game port 0 fire button
bne      skip
move.w   #1,fire
```

The movement information from gameport 1 is evaluated in a similar way, using register JOY1DAT ($dff00c). Gameport 1 fire button is tested using bit 7 of CIA-A parallel port A ($bfe001).

The scroll

Each viewport has a RasInfo structure containing a pointer to the bitmap with the bitplane information. If the viewport has dual playfields, the first RasInfo contains a pointer to the next RasInfo, which has a pointer to the second bitmap.

The picture in memory can be larger than the screen image, when the bitmap is larger than the viewport area. The RasInfo structure has the offsets for the relative position of the display to the complete picture.

In the example program the bitplanes (640 x 400) are larger than the viewport (320 x 200), and the offsets are 100 to start with. If the x and y offsets are changed, the viewport displays a different part of the bitplane. (See last month's Code Clinic for all the gory details).

```
rired:
 ;RasInfo structure for viewport
 dc.l    0
 ;no next RasInfo
 dc.l    BMred
 ;pointer to bitmap
 dc.w    100
 ;x offset
 dc.w    100
 ;y offset
```

A very smooth scroll can be produced by increasing or decreasing these offsets up to four pixels at a time, and updating the display instructions.

Every time the RasInfo offsets are changed the display needs to be updated using the commands MakeVPort, MrgCop and LoadView. The command MakeVPort asks the system to make a set of display instructions (or copper list) from the structures in the viewport.



Control that scroll with your favourite stick

The command MrgCop merges these copper lists into a single instruction list. LoadView turns on direct memory access (DMA) and the display will be shown on the screen. Any flicker can be reduced by waiting for the beam to reach the top of the frame.

```
remakedisplay:
lea      myview,a0
;set up the copper list for each viewport
lea      viewport,a1
jsr      _LVOMakeVPort(a6)
lea      myview,a1
;merge these copper lists
jsr      _LVOMrgCop(a6)
jsr      _LVOWaitTOF(a6)
;wait for the top of the frame
lea      myview,a1
;load the new view
jsr      _LVOLoadView(a6)
rts
```

Theory into practice

The program on the support disk saves the address of the old view using the gb_ActiView offset from the graphicsbase. The view is initialised with one screen(ish) size viewport.

The drawing routines have been used to produce a series of tasteful red vertical and horizontal stripes. The joystick movement is used to control the scroll, but if the mouse is connected to one of the gameports some movement information is picked up from it, making the scroll a bit wobbly.

```
scroll:
 add.w    xmove,d6
 add.w    xmove2,d6
 ;add the horizontal joystick movement
 ;to the horizontal offset
 cmp.w     #320,d6
 bge       vertical
 tst.w    d6
 blt      vertical
 ;test for screen limits
 lea      rired,a5
 move.w   d6,ri_RxOffset(a5)
 ;update the RasInfo x offset
 vertical:
 add.w    ymove,d5
 add.w    ymove2,d5
 ;add the vertical joystick movement
 ;to the vertical offset
 cmp.w     #200,d5
 bge       scrollout
 tst.w    d5
 blt      scrollout
 ;test for screen limits
 lea      rired,a5
 move.w   d5,ri_RyOffset(a5)
 ;update the RasInfo y offset
scrollout:
 jsr      remakedisplay
 rts
```

The program finally releases the allocated memory, replaces the old view and exits. The source code on the support disk is now compatible with Metacomco, Lattice (sorry - SAS/Lattice) and the Public Domain Assembler A68k.

The WORKSTATION is here!

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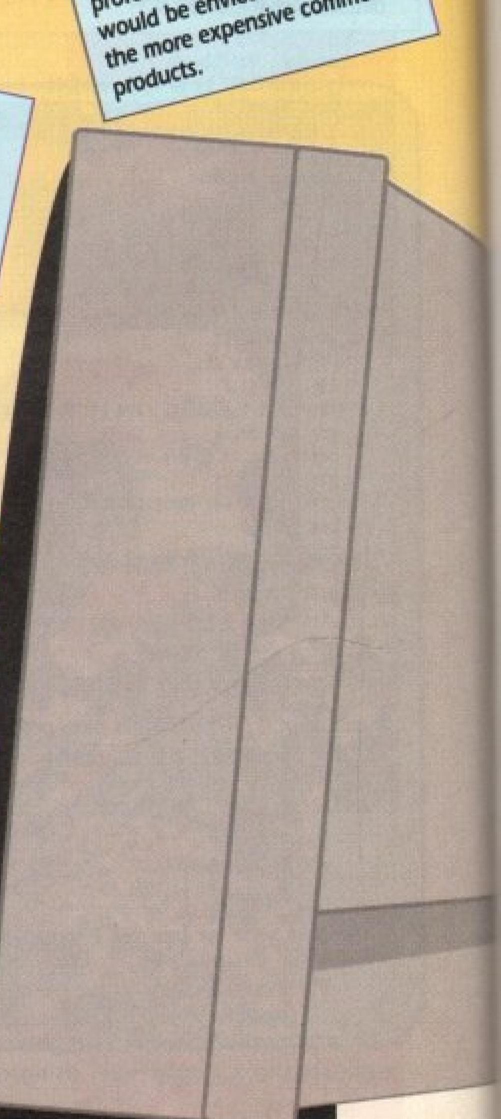
Aspiring artists: Here's the package you've been waiting for! Using nothing more than your trusty mouse you can now freeze and store any Amiga screen that runs under Workbench. Grab screens from your favourite PD game and "edit" those high scores using any popular paint package.

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SunRize soundcards

If you thought 8-bit samplers were the biz, then Jason Holborn has a few surprises for you

There's no doubting the sophistication of sampling on the Amiga. With such powerful products as RamScan's Audio Engineer and MicroDeal's AMAS defining the standards of Amiga audio, the Amiga has become the ultimate platform for sampling freaks and musicians on a budget.

In the case of RamScan's excellent (if rather expensive) sampler, the quality of samples that are obtainable go far beyond the kind of quality that we've come to expect from the aged 8-bit sampler.

However, despite this sophistication, there's no escaping the fact that 8-bit samplers can no longer cut it in the professional music scene.

Even the quality of Audio Engineer leaves an awful lot to be desired when compared to such professional kit as the Akai S1100, Roland's S750 or even the 'super samplers', the Synclavier and Fairlight CMI.

These days, professional musos are used to working with samplers that are 'CD quality'. Indeed, many top recording studios now use powerful digital mastering systems for the production of master tapes.

These powerful systems are capable of recording entire tracks in CD quality direct to hard disk, making both editing and duplication of music far easier.

And, because everything is entirely digital, quality is retained no matter how many times the data is transferred between digital media.

Over the past two years or so, computers have started to challenge the supremacy of such dedicated hardware samplers. One of the first companies was DigiDesign with their powerful 'Sound Tools' system for the Mac and (dare I say it) the ST.

Sound Tools is now generally regarded as something of an industry standard, with many recording studios choosing it in preference to dedicated sampling hardware.

It looks like the Amiga, too, will be getting in on the act very soon with the announcement from California-based SunRize Industries of the forthcoming release of two high quality sampling cards for the Amiga 2000 upwards.

The first should be shipping by the time you read this (Indeed, I should have received my review model – stay tuned for more), but another more powerful sampler will follow in a matter of weeks.

Available now is the AD1012 sampling card which plugs internally inside any machine with Zorro II (or Zorro III, in the case of the A3000) slots. The AD1012 is a powerful 12-bit sampling card that will allow you to record and play back one channel of digital audio with a 12-bit resolution (the same as the Akai S950!) at sampling rates of up to 100 KHz!

Signal processor

To quote SunRize's own specification sheets, the AD1012 features two eighth order linear phase anti-aliasing filters (one for the audio input and one for the output) which can be adjusted to cut off frequencies from 2.6 KHz to 33.3 KHz.

Also included is Analog Devices' ADSP2105 digital signal processor which allows the AD1012 to perform digital effects in realtime. These include graphic equalization, digital filtering, echos, reverb and noise reduction to name but a few.

Finally (and most importantly for the professional market), the AD1012 comes as standard with a SMPTE time code reader which makes it ideal for both music and video post production.

More exciting still is the AD1016 sampling card which is a 16-bit sampler that offers CD quality stereo recording at sampling rates of up to 48 KHz. Once again the card connects internally to the Amiga 2000 upwards, but its features match just about anything professional sampler vendors have yet come up with.

For starters, the AD1016 allows direct digital connection to both CD and DAT (Digital Audio Tape) players, therefore ensuring the highest possible results.

The card boasts 8-times oversampling digital anti-aliasing filters and the powerful Motorola DSP56001 digital signal 'sound accelerator' processing chip.

Rated at an impressive 12.5 MIPS (million instructions per second), this DSP circuitry allows the AD1016 to perform the same digital effects as present on the AD1012, but at studio quality 16-bit resolution. Like the AD1012, the AD1016 also offers SMPTE support, but this is also backed up by a full MIDI implementation.

Instead of restricting themselves by the amount free RAM available within the host machine (a maximum of 16 Mbytes on the A3000, 9 Mbytes on the 2000), both samplers record, edit and play back samples direct from hard disk.

This obviously means that they are of little use without a hard disk, but the advantage of this approach is that your samples are limited in length only by the size of your drive. With multi-gigabyte drives now becoming available, it's possible to sample an entire track directly to hard disk.

And, because the AD1016 can connect direct to DAT, this data can then be streamed to DAT tape to produce professional quality master tapes.

Both samplers come complete with SunRize's own Studio16 sample editing software which offers comprehensive cutting, copying, pasting and mixing of samples direct from hard disk.

Studio 16 also includes an ARexx port, which will allow it to be controlled by other programs including Commodore's own multimedia authoring system AmigaVision. As a result, Amiga multimedia applications can now draw upon CD quality audio as well as digital video.



Could SunRize's forthcoming sampling cards spell the end for such dedicated samplers as the Akai S1100?

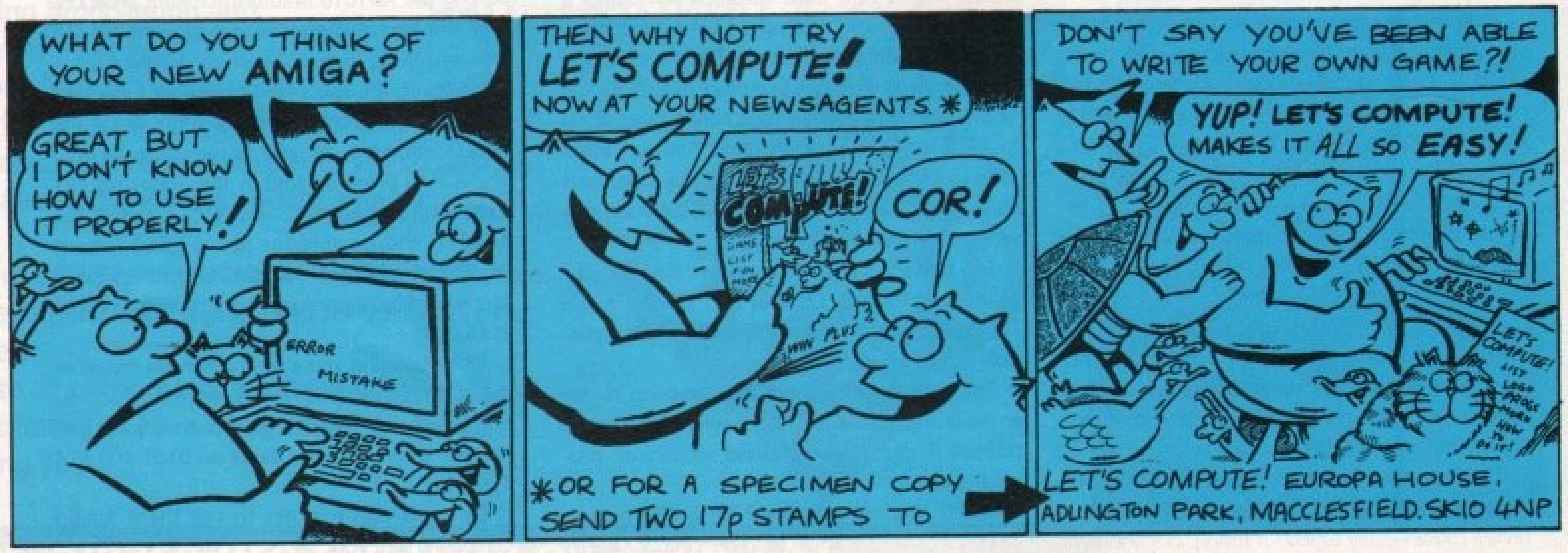
Direct support

SunRize are currently working closely with a number of music software vendors to build direct support for the AD1016 into their wares. Already SunRize have announced that both Blue Ribbon Bakery (they of 'Bars and Pipes' fame) and Dr.T's Music Software (KCS, Tiger Cub etc) will be supporting the AD1016 in future software products. With this kind of impressive fore-thought, we can look forward to some quite amazing products.

However, the specs aren't the only thing that make SunRize's sampling cards impressive – the prices themselves virtually ensure their success. The AD1012 will be sold in the States for just $500 (probably about £350 over here) whilst the Ad1016 will be sold for just $2,000 (about £1,400). Professional samplers with this kind of spec would have previously set you back as much as £4,000!

I'll be bringing you a comprehensive review of the AD1012 as soon as my review model arrives, but if you can't wait to get your mitts on one yourself, phone SunRize direct on 0101 408 374 4962.

Oh, and don't forget to tell them *Amiga Computing* sent you!



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At your Compuservice

A rather big comms service from over there is starting to push hard for subscribers over here. Eddie McKendrick has a nice day with CompuServe

The first thing that hits home about CompuServe is the the sheer scale of its international operation. The service has in excess of 640,000 subscribers worldwide accessing more than 1,400 different online information services.

CompuServe is America's biggest dial-up information service and as such it provides a fascinating window on what is going on over the pond. The service acts as a global forum for information dissipation and discussion related to thousands of diverse topics.

Like most similar services, the dominant discussion force is micro-computing. Virtually every main computer manufacturer and software supplier in the States has a CompuServe mailbox. How immediately useful this would be to you depends on your requirements.

A single assembly of so many key companies is a godsend to people in the computer business. For example, we at Amiga Computing make extensive use of our CompuServe account to track down new USA hardware and keep in touch with what is going down Stateside. Having said that, CompuServe isn't generally the sort of environment where you can just log on for a friendly natter. The system core consists of three key elements: Mail, News and Forums.

Mail

The mail service is a fairly standard affair by today's hi-tech standards. Obviously it is possible to send your thoughts to any of the other 640,000 members. Beyond this files can be transmitted and special pre-formatted greetings and Telex messages can be dispatched.

Each CompuServe user has access to an address book facility for storing commonly used account numbers. This is no small boon considering the huge numbers involved with mailing anyone on the service. (You can contact us at Amiga Computing on 70007,4734)

News

CompuServe's news (and there is a lot of it) takes quite a while to wade through. The core of the service is domestic USA news and financial data.

Quite a few of the specialist news services have tariffs a good deal over and above the basic connect charges. What must be borne in mind is up-to-the- minute financial data could be the difference between making and losing millions in the right hands. The backbone of CompuServe comprises a web of anonymous forums spread around the system. I say anonymous because these potential gold mines are usually accessed via cryptic keywords or less than obvious multiple menu selections.

CompuServe goes some way to making life easier by providing an online "Find" facility. This allows subscribers to type in a topic, and have all relevant forums displayed on a multiple choice menu. For example, typing "FIND AMIGA" will display the dedicated Amiga forums alongside the Commodore Inc. forums.

Forums are split into four sub-areas. These are news, messages, files and conferencing.

Forum news provides the latest details on the subject of interest. This usually consists of details of new services added to the forum or up and coming conferences.

The messages section is similar to a conventional bulletin board with rambles from forum members on various issues of the day.

Conferences

The file area provides hundreds of downloads on anything related to the forum. One point of interest, and considerable annoyance, is that CompuServe does not support Zmodem. The best you can hope for is Xmodem unless you have a comms package designed for use exclusively with CompuServe. Such a package would allow use of the "Quick" range of propriety protocols. These are claimed to be slightly faster than Zmodem.

Finally, and of most interest, is the forum Conference facility.



This is nothing more than a well implemented chat facility which allows users from literally all over the world to exchange views in real time. The bulk of CompuServe's vast membership is American. If you want to have anyone to actually chat to it is best to take time differences into account. Midday here in the UK is the early hours for most of the CompuServe clan.

The chatting facility extends beyond conferencing and into the acclaimed CompuServe "CB Simulator". As the name suggests, this is a facility which allows members to get together in real time using a chat facility within CompuServe which is split into different channels. Each channel has a different topic of discussion and it is possible to switch freely between them, jumping from conversation to conversation.

Well Connected

Your bank manager will be relieved to learn that a telephone call to the States is not required to get online to CompuServe. Instead the the network is accessed via BT's PSS Dialplus network

Dialplus is a local call away from most people in the UK but there is a catch. In order to pay for the honour of using BT's PSS network CompuServe levy a connection surcharge. This currently amounts to a fairly substantial $8.50 per hour prime time and $4.50 off peak.

There is also a usage charge of $12.50 per hour, bringing the daytime charges total to $21.00 per hour. An interesting point is that as CompuServe is an American company, it does charge in dollars and not sterling. The normal way to pay is via direct debit from a credit card account. This means that you are at the mercy of the credit card company as far as exchange rates are concerned.

Paying respect

Now, $21.00 an hour (around £10.00) could never be disguised as the bargain of the century. At the same time the service is not over-priced.

CompuServe can be considered very reasonable value for what is on offer, depending on your particular day-to-day requirements. For example, it is often easier to track people down in the States via CompuServe than telephoning them or sending conventional "snail mail".

If you are of modest means and only want to dabble in comms strictly for fun, CompuServe isn't really for you. On the other hand, if you want to broaden your horizons and have the world at your fingertips, CompuServe is just the gateway you have been waiting for.

Full details of the CompuServe information service are available by calling 0800 289 458.

Micronet Monthly!

Starting next month, Ant "Bassline" Purvis brings us the first of his looks at the quirky world of Micronet. It's all part of the new look comms section.

The rotation angle

Peter Hickman gets in a spin with perspective

Hands up all of you who spotted the late April fool by Stevie Kennedy – yup, that's right, there were no AMOS bits on the cover disk.

Actually I must take full responsibility for it 'cos I kind of got carried away with the programs and there just wasn't room for them on the disk. Anyway, sorry to all you who missed the little beauties - they are on this month's cover disk instead!

By the way, Mandarin have moved. Actually they are moving as I write this (and they still haven't given me the new address!!! Is this a subtle hint I ask myself?).

For this month's programs I am going to make you work! I have a machine code add-on for AMOS which can rotate part of a screen at any angle (Deluxe Paint style). The program was written by Gary Symons, the guy responsible for the AMOS Assembler (quick plug - available for £3.50 fromthe AMOS PDL, phone 0942 495 261 for more details) and the advanced compression routines which you get with the AMOS compiler.

Before I can explain how it works and how to use it you must type in this little program (and they are not on the cover disk so don't look!).

So how does this little thing work, you ask? Well, first we must load in the "Rotate.Abk" bank (on the cover disk) which contains the machine code routine to do the rotating. After that you must switch into degree mode otherwise the calculations for the COS/SIN will be screwy.

```
Load "Rotate.Abk"
Degree
```

Ok that was simple enough wasn't it? Next we have to open the source and destination screens for the rotator to work on. You will notice that in the first screen (screen zero) I have printed the word "AMOS". This is the thing we are going to rotate around 360°. The second screen (screen one) has been opened to handle the destination image

```
Screen Open 0,320,200,2,Lowres
Autoback 0
Curs Off
Flash Off
Cls 0
Paper 0
Print At(0,0);"AMOS"
'
Screen Open 1,320,200,2,Lowres
Autoback 0
Colour 1,$FFF
Curs Off
Flash Off
Cls 0
```

Ok, now the good bit. We set up a loop going from 5 to 360 (72 rotations) and then we call the procedure ROTATE. Don't worry about the contents of this procedure too much (I wrote it to protect all you innocent AMOS owners from the nightmare complexities of machine code) or the BITMAP procedure.

All you have to do to get it to work is pass various parameters to the ROTATE procedure. These are (in the order listed):

Source screen number (standard AMOS screen number)
Destination screen number
X centre of the area to be rotated (source screen)
Y centre of the area to be rotated (source screen)
X width of the area to be rotated/2
Y width of the area to be rotated/2
X position on the destination screen
Y position on the destination screen
Angle of the rotation (in degrees)
Screen resolution (standard AMOS Lowres or Hires)

Ok, I know it sounds complicated – so let's do an example. The most complicated thing to understand about the program is that it rotates an area from X centre-X width to the X centre+X width so that if you told it to rotate an area 16 pixels wide starting at X position 100 it would actually rotate the area from 84 to 116 (which is 32 pixels wide).

In my loop I am rotating an area which is only 8 pixels high but 32 pixels wide. If you look at the appropriate command you will notice that I am setting the X/Y centre to 16,4. This puts it directly in the middle of the word "AMOS".

Next I tell the procedure that I want to rotate an area 16 pixels in width and 16 pixels in height, remembering that the program will actually grab and rotate an image from our X centre-16 to X centre+16. Try changing the X width and the Y width to 8 or 4 to see how they affect the image when it is rotated.

```
For ANGLE=5 To 360 Step 5
 ROTATE[0,1,16,4,16,16,160,128,ANGLE,Lowres]
Next ANGLE
'
Procedure BITMAP[BITMAP_ADDRESS]
 P=0
   L=8
   While Logbase(P)<>0
      Loke BITMAP_ADDRESS+L,Logbase(P)
      Add L,4
      Inc P
   Wend
   Doke BITMAP_ADDRESS,Screen Width/8
   Doke BITMAP_ADDRESS+2,Screen Height
   Doke BITMAP_ADDRESS+4,P
   Doke BITMAP_ADDRESS+6,0
End Proc
'
Procedure
ROTATE[S_SCR,D_SCR,SX,SY,W,H,DX,DY,ANG,RES]
   E2=2^14
   Screen S_SCR
   Reserve As Work 16,100
   BMP0=Start(16)
   BITMAP[BMP0]
   '
   Screen D_SCR
   BMP1=Start(16)+50
   BITMAP[BMP1]
   '
   Areg(0)=BMP0
   Dreg(0)=SX
   Dreg(1)=SY
   Areg(1)=BMP1
   Dreg(2)=DX
   Dreg(3)=DY
   Dreg(4)=W
   Dreg(5)=H
   Dreg(6)=Cos(ANG)*E2
   Dreg(7)=Sin(ANG)*E2
   Areg(2)=RES
   Call 8
   '
   Erase 16
 End Proc
```

What do you think, neat huh? Imagine the potential uses for it. If you had a car racing game where you needed to store a sprite at 32 different angles it could take up quite a lot of disk space.

With the rotator you store it at one angle, rotate it once the program has loaded and then use the GET BOB command to store them in the sprite bank!

You could also use the routine as part of an art package (perhaps one good enough to appear on the Amiga Computing cover disk - Deluxe Paint eat your heart out!).

Oh, I've just had a phone call from Richard Vanner at Mandarin. The phone numbers will stay the same and the address is slightly different. Apparently they are only moving next door! Here it is anyway.

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ADVERTISERS' INDEX

Chunky graphics!

Margaret Stanger interchanges her file formats with more tips for graphics gurus

Previously in Code Clinic, a custom screen and primitive graphics view were set up, using a bitmap structure with information about its bitplanes.

It is possible to set up another of these bitmap structures elsewhere in memory as long as there is room for all its bitplanes.

This backup set of bitplanes could contain some off screen images that could be copied to the display screen as and when needed.

There is a useful graphics library command BltBitMap to copy a rectangle from one bitmap to another. It is necessary to specify:

- the address of the source bitmap
- the x offset of the source rectangle
- the y offset of the source rectangle
- the address of the destination bitmap
- the x offset of the destination
- the y offset of the destination
- the horizontal size in pixels
- the vertical size in pixels
- the minterm or logic function
- the mask or combination of planes to be transferred
- the buffer used to hold information if source and destination overlap

The minterm variable can be found by using logic equations on a source and destination:

Minterm 0x80: There is only output where there is a source bit and destination bit

Minterm 0x40: Only put a bit from source where there is no bit in the destination

Minterm 0x20: Put a bit from destination where there is no source bit (useful for masking)

Minterm 0x10: Put a bit only where there is no bit in either source or destination

This gives rise to combinations

Minterm 0xc0: Vanilla copy source to destination

Minterm 0x30: Invert source to destination

Minterm 0x60: Put source where there is no destination, destination where there is no source – useful for putting an image on a background after first putting on the image mask with a minterm of 0x20.

The next question is how to get a DPaint masterpiece from disk onto your waiting bitplanes. Many pictures are stored on a standard file format to make life a little easier.

Decidedly IFF'y

Interchange Format Files (or IFF) are a convenient way of storing data in a way that any program can recognise. Usually the file starts with a group header. This has a group ID of four ASCII letters, the total file length, and then the ID of the type of file.

The picture files that I have come across are usually ILBM (interleaved bitmap) or ACBM (contiguous bitmap) but there could be others as well as files for music or text data.

The file would consist of a series of chunks, starting with a chunk ID and chunk length followed by the chunk data.

Typical chunks on picture files would be:

BMHD

The bitmap header has the depth, width and height of the picture and the screen it came from, and a flag to indicate whether the data was compressed.

```
rLen = Read(fHandle,&mybuf[0],icLen);
scrWidth = mybuf[1] + 256*mybuf[0];
scrHeight = mybuf[3] +256*mybuf[2];
iDepth = mybuf[8];
iCompr = mybuf[10];
iWidth = mybuf[17] +256*mybuf[16];
iHeight =mybuf[19]+256*mybuf[18];
iRowBytes = iWidth/8;
scrRowBytes = scrWidth/8;
nColors = power(2,iDepth);
```

CMAP

This chunk contains the colour information

```
readcmap()
{
rLen = Read(fHandle,&mybuf[0],icLen);
for (i =0;i<nColors;i++)
{
red = mybuf[i*3];
gre = mybuf[i*3 + 1];
blu = mybuf[i*3 + 2];
colormap[i] = 16*red +gre  +blu/16;
}
LoadRGB4(WVP,&colormap[0],nColors);
return(0);
}
```

ABIT

This is the main data for an ACBM picture. The information is stored for a complete bit plane at a time.

BODY

Data for an ILBM file. The data for all the bitplanes of the first screen row is followed by similar data for the other rows. If there are a lot of bytes of the same colour the data may be compressed to save disk space.

```
readbody()
{
tempbuffer=(char *)AllocMem(icLen,65539);
rLen = Read(fHandle,tempbuffer,icLen);
if (iCompr>1)
printf("Unknown Compression Algorithm  \n");
if (iCompr==0) plainread();
if (iCompr==1) decode();
FreeMem(tempbuffer,icLen);
return(0);
}
```

The usual algorithm is to use a flag to indicate whether the next few bytes are to be read individually or cloned.

```
decode()
{
USHORT rows,planes,columns;
UBYTE bCnt,inCode,inByte;
UBYTE *place;
UBYTE *scrRow;
place= tempbuffer;
or (rows=0;rows<iHeight;rows++)
{
for (planes=0;planes<iDepth;planes++)
{
scrRow=PicBitMap.Planes[planes]
+ (rows*scrRowBytes);
bCnt=0;
while(bCnt<iRowBytes)
{inCode=*(place);
place++;
if (inCode<128)
{for
(columns=0;columns<inCode+1;columns++)
*(scrRow+bCnt+columns)=*(place++);
bCnt=bCnt+inCode+1;
}
else if (inCode>128)
{
inByte= *(place);
for
(columns=0;columns<257-inCode;columns++)
*(scrRow+bCnt+columns)=inByte;
bCnt=bCnt+257-inCode;
place++;
}
}
}
}
return(0);
}
```

The file reader

This IFF file reader was inspired by ReadILBM-SaveACBM on the Basic Extras disc. The program starts by opening a lo res full size screen with default colours. I used one of the pictures from FunSchool2 but any lo-res file would do.

The Sozobon C compatible source code (iff.c), the final program (iff), and the picture (piccy) are on the CODECLINIC directory of the support disk.

The file header is read in and the program exits if the file is not ILBM or ACBM. Information is used from the BMHD chunk to set up a bitmap structure and planes the same size as the picture on the file. The CMAP chunk gives us our colours and CRNG,CCRT and DPPV chunks are ignored by this program.

The BODY chunk is read into a buffer, as it is quicker to read it all in and sort it out later. As it happens the data was not compressed but I have tested the program on compressed files from DPaint.

When all the chunks have been read in, the full picture is copied on to the screen bitmap from its own bitmap. The program waits for a mouse button to be pressed before it cleans up and exits.

Where to from here?

The program could be adapted to recognise other chunks, especially colour cycling or perspective, instead of just skipping them. Adaptations could be made to read in brushes as well as full size pictures.

When memory is short, the BODY data could be read in a bit at a time into a smaller buffer, or the program could arrange to reuse the memory buffer after it is finished with.

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The cats eyes

Barnaby Page introduces DTP as a means to an end in part one of his in-depth guide

As every schoolboy knows, DTP is a tool, not an end in itself. The last thing you want is for readers to spend their time admiring your Professional Page skills rather than reading the text. How do you prevent a document from looking glaringly "DTP'd"?

Well, you could try setting the odd line of type slightly off-kilter and putting inexplicable spaces between paragraphs to emulate the old days of hasty paste-up, but that might be going a bit far. Instead, here's a set of four principles to watch out for – and because this is computing, we have to have an acronym, so let's call it CATS (Consistency, Assertiveness, Tradition, Simplicity).

Consistency

You can tell that The Guardian is not The Sun without looking at a single word, because each paper has its own 'house style' – a set of rules that everyone must follow when designing pages and writing text. The presence of a house style in any publication ensures that all pages are recognisably part of the same whole, and that readers soon become comfortable with the design: they're not shocked on each new page by wildly varying typefaces, column widths or length of articles.

The first decision on house style is the grid, which John Walker covered in this column last month. Make up a grid, and stick to it 99% of the time – then, when you do decide to depart from the norm for a special effect, it will be all the more startling. Beware of making up a grid that is so abstruse only you can understand it (for instance, games articles set over 12 picas, modem reviews over 14.5, programming tips over 7.8...).

I know you've been harangued about this a dozen times before, but choose your typefaces as if each one takes a year off your life. One serif and one sans-serif face is nearly always enough, especially when they're available in different weights (bold, medium, light etc) and can be condensed and expanded for variety. But don't feel limited to boring old Times and Helvetica: if you have a couple of more unusual faces available, say Garamond and Futura, use them. Your publication will feel fresher.

At this point make detailed decisions about how you're going to cope with text that needs highlighting – for instance, intros, bylines, subheads, foreign words or the titles of software packages. Many publications use italics when they refer to titles within text, but this must depend on your subject matter: if you're going to say 'PageStream' four times in each paragraph, the plethora of italics will distract the reader. Avoid underlining text, even at knifepoint – this device is a hangover from typewriting, when no better form of emphasis was available.

Keep a sense of proportion. Headlines should be bigger than subheads, subheads bigger than body text, body text probably bigger than footnotes. Give a moment's thought to acronyms, too. Capitals are generally harder to read than upper-and-lower-case text, so if your text is going to be full of ROM, RAM, NATO and AIDS, consider writing them as Rom, Ram etc, or using small capitals. (These are capitals the height of a lower-case letter such as 'm'; they aren't available in all DTP software but they can often be faked.) Creating a house style also means making decisions on spelling (microcomputer or micro-computer) and punctuation ('Hi!', he said – or "Hi!," he said).



After six or seven ideas and one or two late nights the new Europress Logo emerged

Assertiveness

The rules, however, are there to be broken. If 90% of your pages conform to a rigid grid and a house style for typography, you can make a terrific impact by stepping over the boundaries in the other 10% of pages. Try running a headline right down the left-hand side of a page, for instance; or using a single word set very large in capitals.

Pictures are most powerful when they're used sparingly, but BIG. If you can, crop them so that the item of most interest comes right up to the edge of the image – don't waste space on a man's arms and his St Michael suit if the face is expressive.

Give special consideration to the bottom of the page. Don't let the page deteriorate from a bold headline at the top to wimpy footnotes at the foot; put a box there, perhaps, or a powerful pull-quote, to reinforce the rectangularity (Pseud's Corner here we come...). Look at the way newspapers do this, with what they call an 'anchor story'.

Don't forget the end of a publication, either. Magazine research has proved that many people leaf through things backwards.

Tradition

As John Walker suggested, look to other publications for design ideas. There is a good reason for most people using column widths between seven and 20 picas, and body text between 8pt and 12pt, and that is that it works. True, occasionally a design has changed the ground rules – The Face and Smash Hits did so in their time. But if you or I try something too novel, we run the risk of confusing readers.

Recently I was designing logos and stationery for a friend's new shop, and in these cases I normally knock together six or a dozen ideas, see what they like best, and then work from that. It was no surprise that everyone who saw the examples went for a variation on a traditional theme, rather than Something Completely Different: people respond best to designs that are essentially familiar, with just a touch of unexpectedness.

Simplicity

Or perhaps the S should stand for Summing-Up. Probably the worst thing anyone can say about a publication is that it's over-designed: that implies that the designer has had a good time messing around on his or her Amiga without a thought for the reader or, ultimately, the success of the publication.

Before you even turn the machine on, think about what you want the finished product to look like. Sketch it out. Don't even consider what your DTP program is and isn't capable of: compromises can come later. Write down your rules, stick to them, and within those you can let creativity run free.

Barnaby Page is editor of PrePress magazine and a DTP consultant. He can be reached on CIX as 'prepress'.

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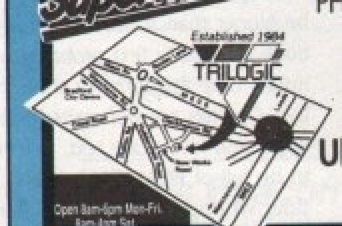
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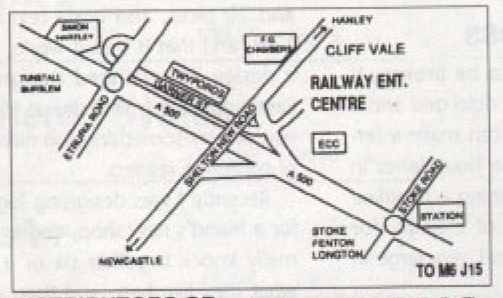
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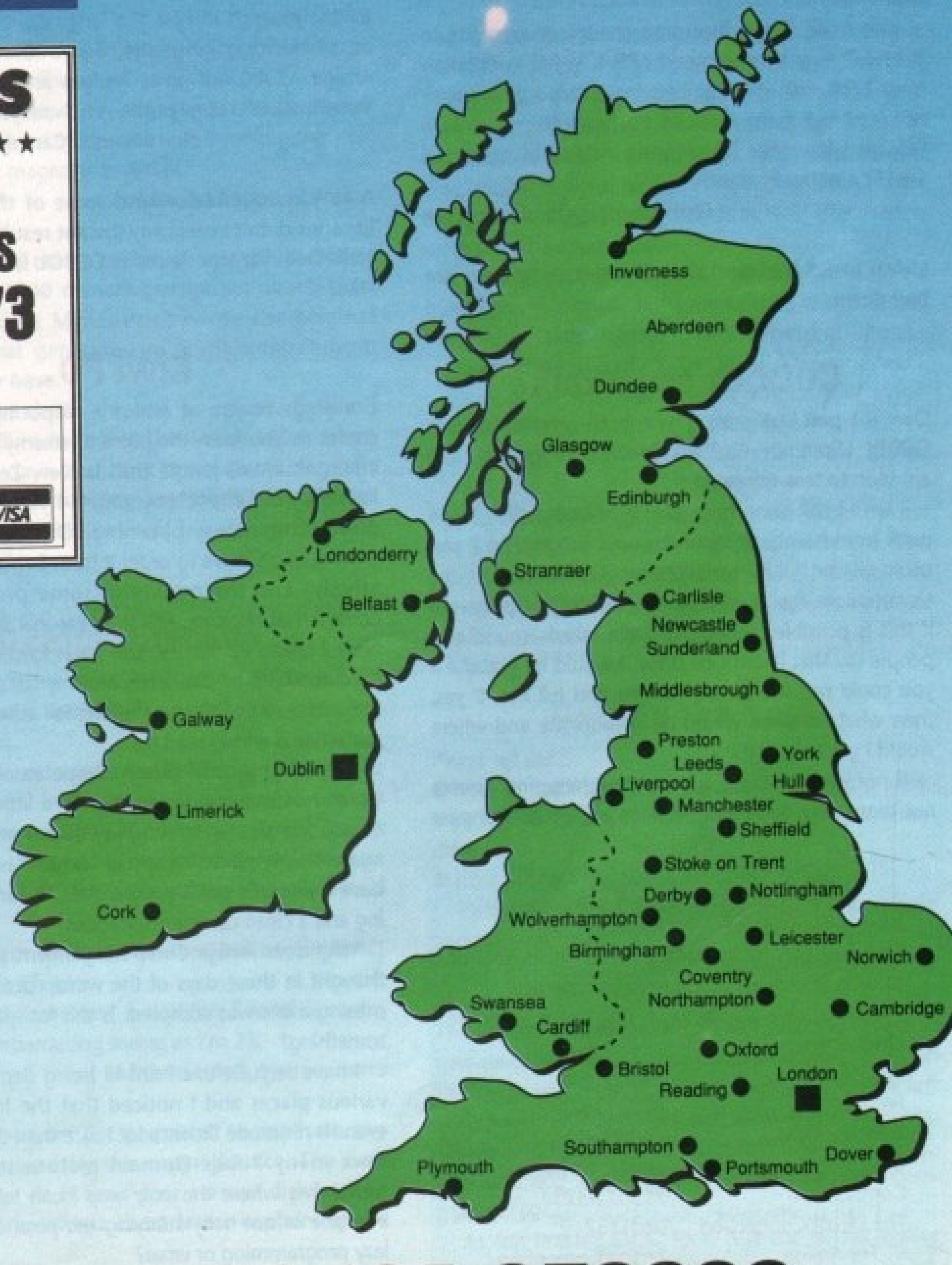
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Free Plug

It has been mentioned before, with reference to the CoverDisk, but I feel that all "free" items supplied with the best Amiga magazine should be mentioned on the cover. So, I've never missed a cover disk, but didn't even know that I was supposed to receive a copy of Games-X with the May edition, until reading a certain news article on page eleven. This is not such a life and death case as missing the disk but hopefully this request will make sure that the cover designers mention such things in future so that either myself or any other reader should not miss out.

David Fairweather, Blackburn, Lancs.

The problem is that if we mentioned everything we give away on the cover, there wouldn't be any room to highlight the features inside! Your copy of Amiga Computing should have had a plastic 'band' plastered with the Games-X logo. Maybe that went missing at the same time as the magazine did.

Satisfied Customer

Just recently I have noticed quite a few letters bemoaning mail order, and would therefore like to use your pages to thank three companies for their amazing performance. So thanks to Hisoft, 17bit and DTBS. I posted three cheques on the Monday at 2.45pm. I received the order from 17bit and Hisoft at 8.30am on the following Wednesday and DTBS's at 8.30am on the Thursday, so it's not all doom and gloom on the mail order front.

Also to all those discerning enough to upgrade to WB1.3.2 may I recommend ARP 1.3, full installation from 17bit disk 466. The benefits of this are manifold, not least using the reduced startup-sequence WB1.3 will load in under 50 seconds instead of the usual 1m15s it normally takes.

Chris Cannon, Romford, Essex

Living proof that not all mail order companies are bad news.

COBOL compatible?

Over the past two years, I have been programming in COBOL (Common Business Oriented Language), and am soon to take my exam.

I have been using my mate's IBM-Compatible PC to work from home, although I would be grateful if you could tell me if it is possible to program COBOL on the Commodore Amiga A500. It would really help me out if this is possible, although I have asked around and people say that it can't be done. I would be grateful if you could put the record straight and tell me. If yes, then what Software would be appropriate and where would I get hold of it?

If not, then if there are any programming houses out there why don't you produce a COBOL Compiler for the Amiga?. Alright, the language COBOL is more an all-business language, but what with the new Amiga A3000 out now, Amigas are popping up in some small and large business nowadays.

Neil Mansell, Canvey Island, Essex

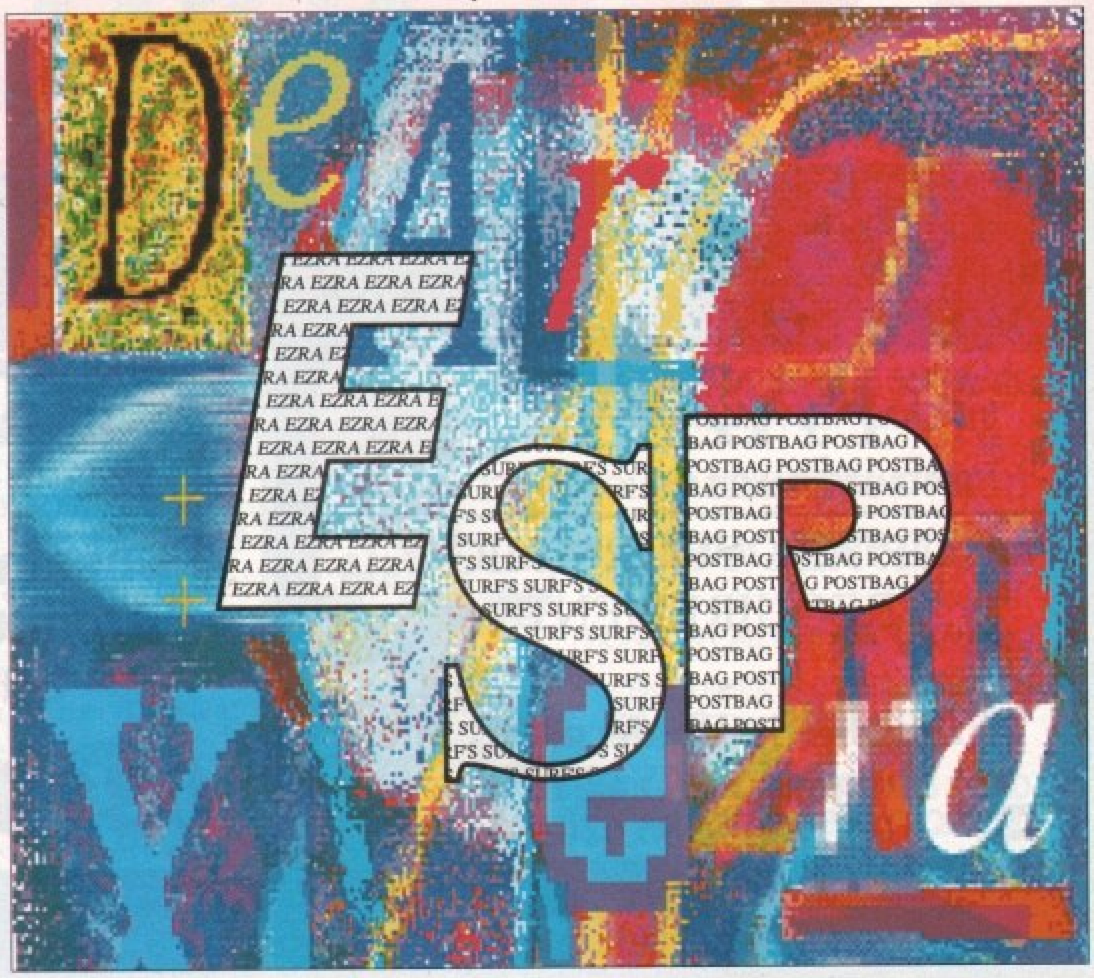
A very quick check round some of the bigger PD libraries didn't reveal any instant results, I am afraid Neil. Does anyone know if COBOL is available anywhere?

Ezra online

Ezra Surf can be contacted on a whole host of bulletin boards and conferencing systems.

If you have anything to say, get it off your chest online!

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Kiwi PD

Greetings to you at Amiga Computing. This letter comes to you from the hot and steamy (political and environmental) jungle that is New Zealand. As an incredibly out of pocket young (14 years) Kiwi I spend most of my money obtaining PD software. It's relatively cheap (I have to order it from England hence relatively) and the quality of some programs rival commercial releases. For this reason I have set up a New Zealand PD library, and I was kind of wondering if you could print this letter and my full address, as at the moment I can't quite afford full adverts and your magazine is widely read here.

In setting up my library I hope to offer a service which I believe may eventually do a little bit towards combating piracy, something which I am very much against. Why pirate a copy of Music X when you can have a perfectly great copy of MED 3 for barely nothing and a clean conscience to boot?

Why does Amiga Computing indent paragraphs? I thought in these days of the wordprocessor that just missing a line was accepted. Is this for space saving or something?

I have seen Deluxe Paint III being demonstrated in various places and I noticed that the Interlace and even Hi-res mode flicker a lot more than they should. I have many Public Domain picture showers and slideshows where the only way I can tell if they are interlace or not is by studying the pixel shape. Is this lazy programming or what?

I have noticed sometimes upon loading up different programs that the computer seems to give me a shorter screen length than I should have. Is it confusing itself and thinking I have a NTSC screen or something?

Thomas Scovell, Brick Bay Drive, RD2, Warkworth, New Zealand

OK, your full address is above, as requested. Good luck with your PD library, I hope that last month's feature has given you some pointers on where to start with your venture.

Hi-Res and Interlace modes do flicker on an Amiga without a flicker fixer and multisync monitor. It is possible to reduce the flicker by using dull colour combinations. Yes, you are right, when your Amiga only displays a partial screen it is because you have booted up in NTSC mode. As for indenting paragraphs, it's because they look better that way!

Get it write!

Wrong! QuickWrite is not the first cheap wordprocessor to hit these shores from America. Wrong! Neither is it the cheapest. Transwrite is. A damn sight cheaper at circa 32 quids, and all on one disc, and with an 80000 word, real time spell checker!

Wrong! You cannot 'ring any time of day or night' to order the new Amiga Computing Workstation disk. Well, you can ring, but you won't get any reply!

Now a request for the best British Amiga mag on

the market to get something right. You are always on about expanding the famous machine, but only do it piecemeal. Why not give us potential computer yuppies the benefit of knowing exactly what the word 'expanded' means?

Do an article on what the Amiga user with the mostest would have, assuming he had the millions! You might even start a column on the new CDTV/drive before it comes out – just copy the American mags and steal a march on your rivals.

James Howley, Burnley, Lancs

You would be surprised how few of our readers don't have 'millions' to blow on expensive hardware! Over two previous issues, we took a look at the affordable side of expansion, which I hope was of some interest to you.

As for stealing a march on our rivals, we are not always first to hype up new products before they are available to readers, but then again, we are not second best.

A ripping yarn

Congratulations on issue number 36, especially the CoverDisk. 'TANX' is one of the few Amiga games that I enjoyed the first time I played it. Unfortunately I had some difficulty with The Graphics Ripper. Everything went well until I tried save pictures, when a system message appeared ("Software Error Task Held...").

I have tried switching off my memory expansion, and unplugging the second disk drive, but this did not help.

I bought my Amiga 500 at Christmas so it has Amigdos 1.3.

I was running TGR from a bootable disk created using Auto Script. After TGR crashed I found an empty file called TGRFILE1.

Am I doing something wrong? I would really appreciate any help you could give me on this, as I was looking forward to using this extremely interesting program.

Keep up the good work.

Dennis Jacobs, Moseley, Birmingham

Try running the ripper from CLI. The author of the program forgot to tell us before we complied the documentation for the CoverDisk. Stevie Kennedy being a hardened hack runs most things from CLI, so he didn't notice the glitch.

1000s wouldn't?

I write with reference to a letter entitled 'First Time Moaners' by Oliver Prill in Issue No.35.

I agree wholeheartedly with Oliver's sentiments about the Amiga 1000. I too have been the proud owner of an Amiga 1000 for some time and have never had a problem. Basically I do not understand how you can justify your claims that most copy protected software would not work, nor would hardware addons. I too have yet to come across a single program that would not work. From time to time a programme has failed to work on a given version of Kickstart. This of course would cause immediate problems to owners of the A500 and A2000. To the owner of an A1000 the solution is simple: turn off the machine and reboot with alternative version of Kickstart.

I suppose this brings me to my second point which is that getting the A1000 up and running is by no means the long and laborious task many seem to claim: Kickstart only takes around 10 seconds to boot and remains present after reset. As far as I am concerned the additional wait is well worth the benefits, i.e. the ability to run all software but that which is intended for Kickstart Version 2.0.

Also, The Amiga 1000 has comparatively few problems on the hardware addons side. Indeed, in some respects the situation is better than that of the A500. For example, a certain mail order firm informed me of an A1000 specific add on board, 'Quickstart', which incorporates Version 1.3 and Version 2.0 of Kickstart on ROM. Although I was not told in so many words this board would leave free the 256K of RAM previously occupied by the operating system.

Finally, I must say that I am a regular reader of your magazine, and in my opinion you produce the best Amiga specific magazine available.

Rupert Pepper, London

Yours is one of many letters we are still receiving from Amiga 1000 owners passionate about their machines. Eddie McKendrick wrote the original paragraph that generated so much emotion from the 1000 user base.

Despite the death threats, he refuses to climb down and still reckons that the Amiga 500 is a better bet these days. You can't teach an old dog new tricks. I won't be running any more letters about that article now, Eddie hasn't bought me a coffee for weeks as it is...

DPaint Dilemma

When I bought my AMIGA I received DPaintII free, now due to some carelessness on my behalf, it has several R/W errors.

I don't fully understand the 1988 copyright act so is it legal or illegal for me to get a new copy from my friend who also got DPaintII free with his A500?

Surely this does not contravene any laws because we both have legitimate copies of the aforementioned program!

If it is against the law, then the 1988 copyright act is a farce, isn't it?

P.S. The MAY issue had a HORRIBLE kiddies cover, somewhat embarrassing seeing as I'm 23!

Michael Heyes, Nelson, Lancs

Technically, you are not permitted to duplicate any software covered by the copyright act. The best thing you can do is send your corrupt disk back to Electronic Arts with a short letter explaining the problem.

All of the big kiddies at the Amiga Computing office thought that the Count Duckula cover was one of the best ever. Look out for more of the same!

Mono-colour

I am a student on a limited budget and am finding it difficult to justify the expense of such equipment as over priced video cameras. I am therefore writing to your magazine hoping that you can advise me as to whether the cheaper security-type video cameras provide a suitable signal for use in either the Vidi-Chrome or Digi-View digitisers. An idea as to their effectiveness would also be appreciated.

I realise that this type of camera produces a monochrome output, but I am hoping that this may be a more cost-effective means of getting into the video-graphical area of the Amiga via a 'colour wheel'.

I was going to creep about how great your magazine is....but then you know that already.

D.J. Plumb, Poole, Dorset

Any camera which provides a mono-video output will be ideal for use with digitising packages. You would also be well advised to take a look at 'The Complete Solution' from Rombo. There is a chance to win one elsewhere in this issue.

Getting the boot

Please tell me...

- How to make a self-booting disk that boots to workbench (like your CoverDisk) with only my internal drive.
- How to make doc files.

Please help me, I have been trying for a long time and I am having no luck.

Peter Rimmer, Fallowfield, Manchester

The easiest way to produce a self booting disk is to make a copy of one of our CoverDisks and delete all the programs from it. If you don't want to be left with an open command line after the disk boots, simply edit the STARTUP-SEQUENCE in the S: directory and add a new line at the end with the command ENDCLI.

As for making DOC files, just use a text editor (like ED, supplied with your Amiga).

Surf's secrets

Could you give me an inkling of an idea of whether or not the infamous Commodore 512K Ram upgrade will be reduced to a reasonable purchase price in line with third party suppliers – seeing as Commodore are starting to ship the 500 with one intact at no extra cost.

Another thing I would like to inquire about is how do readers' letters appear in your magazine. Do you scan the letters directly into the computer and edit them in this way – or do you get typists to type from the source?

Again in issue 36, a letter from a Mr Ian Simllan of Sheffield entitled TROJAN TRAUMA? states that he thinks that your CoverDisks have a good chance of harbouring a virus – more so than the software that he receives from PD libraries.

I would like to defend your magazine on this matter. I would just like to say that I have never had any virus problems from your particular publication and that I personally would not trust any disk at first. I always check all bootblocks and executable files before adding them to my collection. Oh, by the way, KDVIII is brilliant – as is your cover disk. Your mag's a great read, so much more serious than the rest in my opinion.

I thought I'd write in for the first time and give a few of my thoughts on the day before my 24th birthday. (It's not supposed to soften you up and award me a prize – honest!)

Oh, one more thing, who on earth do we – the letter writers – get our letter edited by, surely their name's not Ezra?

Tom Haslam, Birstall, Leicester

When I receive mail through the post as hard copy, it gets manually keyed by one of my elves, then I do this dark ramble at the bottom.

Ideally I would prefer to receive letters as ASCII files on Amiga disks. They stand a much better chance of getting published that way.

I asked around the Amiga Computing office – three people think my name is Ezra and the fourth didn't have any idea. So Ezra it is.

Commodore couldn't comment on what is going to happen with the price of the A501 ram expansion.

HOW'S THIS FOR A

For UK subscribers who would prefer free games software to the Personal Sound System *(see opposite page)* we are giving away TWO brilliant Infogrames award-winners which have impressed reviewers worldwide. Normal rrp for the package of these two games is £29.95



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ROCK LOBSTER

The Amiga Computing team chill out...

Caught in the act!

In the DMA Design profile featured elsewhere in this issue, we described Leslie Bunder as "our very own Lemming" I bet you think we were being cruel! Now you have seen the man for yourself, send your witty captions to:

Caught in the act,
Rock Lobster,
Amiga Computing,
Europa House,
Adlington Park,
Macclesfield SK10 4NP

There might even be a prize or two.



Seasons in the sun

There isn't much to be stunningly trivial about in this month's Rock Lobster. The summer is traditionally a sleepy time in Amigaland and this year isn't going to break any moulds.

We have had tons of entries for the Lemmings competition and some lucky winners should be getting cutsie freebies through the letterbox any day now. No more entries please!

Last month's "Caught in the act" caption competition has had something of a mixed response. We can't print the entries we like and the ones we can print are dismal! If I was doing the whole thing again I would have banned any references to Virtual Reality.

Wide boys

We hope you enjoy the new wider format Amiga Computing as much as we enjoy writing the extra words to fill it!

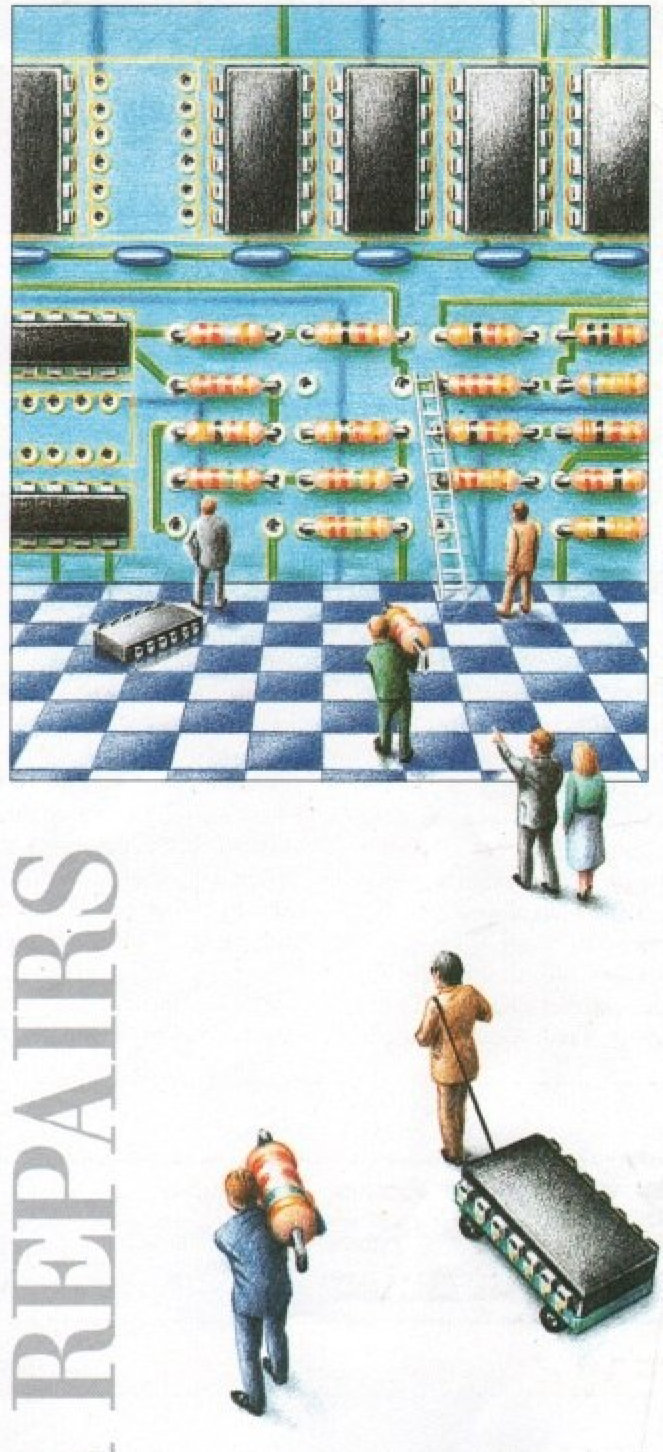
Your new value packed AC has an extra 60cm² of surface area on each and every fact packed page (it says here)

We thought long and hard about changing over to our new size and only took the plunge after we were totally happy with the look and feel of the bigger issues.

You would hardly expect Britain's longest running monthly Amiga magazine to dive in with a "never mind the quality – feel the width" approach.

We would be interested to know what you think of our new look, send your comments to the usual address.

Amiga Repairs



If something is wrong with your Amiga 500 or C64, who better to turn to than the FMG National Repair Centre.

For all repairs to your computer, one low payment covers diagnosis, repair (including parts and labour) and delivery back to you.

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To schedule a repair call Michelle or Audrey on 0733 391234.

Please be ready to give your name, address, computer type, serial number and the type of fault.

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The colour solution is fully compatible with all Amiga's from a standard A500 to the ultimate A3000. No additional RAM is required to get up and running.

You will see from independant review comments that we are undoubtedly their first choice and that was before the complete solution was launched. If you have just purchased your Amiga and are not sure what to buy next, then just read the comments or send for full review and demo disk.



Actual unretouched digitised screenshot

Features ...

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Amiga Computing: The best Amiga digitiser has had the technicolour treatment. Vidi must be one of the most exciting peripherals you can buy for your Amiga.

Micro Mart: When I first saw Vidi "in the flesh" as it were, at the CES show last September it looked to be the answer to a frustrated Digi View owner's dreams – in fact to see pictures appearing on screen without the customary two minues wait seemed almost too good to be true. I have consistently produced more good quality pictures in the short time I have had Vidi than I ever did with Digiview.

Zero: Now under normal circumstances cheap usually means poor quality but this is not the case with Rombo. Why? cos Vidi-Amiga is the best digitiser for under £500 and I've tried them all.

Amiga Format: Where quality is concerned, Vidi produces some of the best results I've seen on any digitiser at any price.

Amiga User International: The latest addition to the Rombokit is called Vidi-RGB and brings this already impressive package to the realms of totally amazing. CONCLUSION: Who will find Vidi-Amiga useful? The answer to this is almost anyone with a video recorder or camera and a passing interest in graphics.



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